

The Long Island Rail Road

Passenger Train Emergency
Preparedness Plan



49 CFR Part 239

The Long Island Rail Road (LIRR) is a wholly-owned subsidiary of the Metropolitan Transportation Authority (MTA) and is a public benefit corporation pursuant to the New York State Public Authorities Law. The railroad is operated as a Class 3 railroad, as defined by the Interstate Commerce Commission.

The LIRR operations and financial performance is audited and evaluated by the New York State Comptroller, New York State Department of Transportation, Metropolitan Transportation Authority Inspector General, New York City, Suffolk and Nassau County governments, and Federal agencies and administrations involved in project funding.

LIRR rail operations and employee safety and health conditions are subject to Federal Railroad Administration rules and regulations, New York State Bureau of Occupational Safety and Health, New York State Public Transportation Safety Board, and National Transportation Safety Board.

The Long Island Rail Road (LIRR) was chartered in Albany in the year 1834, and is the oldest railroad in the nation operating under its original name.

In 1900, the Pennsylvania Railroad purchased and operated the LIRR and continued to directly operate the Railroad until 1954 when New York State passed legislation whereby the railroad was operated as a railroad redevelopment corporation.

New York State created the Metropolitan Transportation Authority (MTA); and on January 20, 1966, the MTA purchased the capital stock of the LIRR from the former Pennsylvania Railroad, and re-incorporated as a public benefit corporation subsidiary of the MTA in 1980.

The LIRR provides commuter passenger services for New York City (Brooklyn, Manhattan, Queens) and Long Island (Nassau, Suffolk). The LIRR consists of ten branch lines covering a total of 319 route-miles of which adds up to 701 track-miles. Three hundred eighty-six (386) miles are electrified with 750-volt Direct Current Third Rail power. The LIRR commuter service is provided for 265,000 passengers on an average weekday; or 74.4 million passengers annually.

Primary and Secondary Contacts

The Long Island Rail Road has taken great care in preparing this program compliance document. Each required plan element has been analyzed and those analysis have been supported with concise summaries. Additional support for each element has been included in the appendices of this program submission.

This submission has been prepared for your review and approval in outline form with summaries of each topic. With a document of this type, the reviewer will be able to read the summaries of each element of the plan as well as what will be actually taught to our employees and emergency responders.

The Long Island Rail Road has chosen the individuals listed below as the primary and secondary contacts for all matters relating to 49 CFR 239, Passenger Train Emergency Preparedness:

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PLAN ELEMENTS/TOPICS

1. Communications - .101(a)(1)
2. System Route Characteristics
3. Employee Training and Qualifications - .101(a)(2)
 - A. On-Board Personnel
 - Rail Equipment Familiarization
 - Situational Awareness
 - Passenger Evacuation
 - Coordination of Function
 - Hands-On Instruction
 - B. Control Center Personnel
 - Dispatch Territory Familiarization
 - Protocols Governing Internal Communications
4. Special Circumstances - .101(a)(4)
5. Liaison with Emergency Responders - .101(a)(5)
6. On-board Emergency Equipment - .101(a)(6)
7. Passenger Safety Information - .101(a)(7)
8. Passenger Train Emergency Simulations - .103
9. Debriefing and Critique - .105

PLAN ELEMENT 1

COMMUNICATION 239.101(a)(1)

All Long Island Rail Road trains have supplemental radio communication. Every locomotive, MU and Cab Control Car is radio equipped.

Each engineer's cab, except for GP-38, E-15 locomotives and Power Units, is equipped with an Intercom/Public Address system. This gives crew members the capabilities of making entire train announcements or intercom communications with other crew members or other emergency responders.

On board crew members are trained to contact the Movement Bureau in the event of an emergency. The Movement Bureau will then notify the Metropolitan Transportation Authority (MTA) Police Communication Center at (718) 558-3300 and send out the proper paging to alert LIRR emergency response personnel and supervisory personnel. The Police Communication Center will then directly contact all required emergency responders.. The Movement Bureau is responsible for maintenance of an accurate Emergency Responder Telephone List.

If the emergency involves a highway-rail grade crossing, the control center will utilize the Standard Operation Procedure (SOP). The SOP will be utilized to determine the route and exact location of the incident. Each crossing is identifiable in the profile by name and a Department of Transportation (DOT) identifying number.

It is incumbent on train dispatchers to pinpoint the exact location of any passenger train emergency by utilizing the SOP, timetable or other sources. Exact locations are necessary to ensure the correct and immediate response of the local emergency responders and to facilitate the handling of trains approaching the affected area (see Appendix 1).

PLAN ELEMENT 2

SYSTEM ROUTE CHARACTERISTICS

Long Island Rail Road Transportation Department employees are required to qualify on the entire LIRR system (Zone "C"). Train Dispatchers, Engineers and Conductors, in addition to being qualified in Zone "C", are also required to qualify in Amtrak Zone "A" (Penn Station and vicinity). Block Operators on the LIRR are required to know the physical characteristics for each interlocking they are qualified to work.

Physical characteristics maps, engineering line prints and signal and interlocking prints are made available to the above employees either individually or at their work locations. The LIRR Training Department also provides physical characteristics training aides as follows:

- Physical characteristics video tapes
- Physical characteristics system maps
- Physical characteristics practice examination
- Large interlocking maps (enlarged size of Jamaica, Harold, etc).
- Signal and interlocking prints
- Engineering line prints

In addition to the above information, the employee timetable contains various physical characteristics, i.e., station information, third rail locations, electric lock switch locations.

Records of employee physical characteristics qualifications are maintained by the Superintendent of Rules, Procedures and Air Brake.

LIRR qualification zones as per timetable Special Instruction, are shown below:

1075-C General Order Zones are as follows:

Zone A: AMTRA N.E. CORRIDOR - New York Division, A to Harold
including all tracks in Penn Station and Lines 1, 2, 3 and 4.

Zone C: Long Island Rail Road - Entire system including West Side Yard.

G.O. 501

Effective 5/18/98

PLAN ELEMENT 3

EMPLOYEE TRAINING AND QUALIFICATIONS - 239.101(a)(2)

Each Hours of Service, on-board, train and control center personnel is required to be trained and examined on the provisions of Passenger Train Emergency Preparedness, 49 CFR 239 including "hands-on" usage of on-board emergency equipment by the on-board train personnel. This will include the actual operation of emergency windows, emergency door release procedures and emergency tools for the on-board personnel. Training will be accomplished by Training Department Trainers and Craft personnel from the ranks of train and engine service.

An examination will be administered under the authority of the Director - Employee Training & Development. The test will be objective in nature, in written form and will be designed to test the employees knowledge of their responsibilities under the Plan. The examination will consist of 20 questions with a passing standard of 75% correct answers. An employee who fails to negotiate a passing grade on the examination will be governed according to the agreements between the Carrier and the Union with respect to periodic examinations on the Rules of the Operating Department and Timetable.

After the initial training, employees will be trained and tested biennial in conjunction with their periodic re-qualification on the Operating Rules and Procedures.

(See Appendix 2 and 3)

Revised 10/28/98

PLAN ELEMENT 4

SPECIAL CIRCUMSTANCES 239.101 (a)(4)(ii) OTHER OPERATING CONSIDERATIONS

A. Evacuation on Elevated Structure

Evacuation is a last resort and must only be considered when remaining on equipment is more dangerous than leaving it. The following procedures should be followed:

- Always assess if it is feasible and safer to use a rescue train.
- Crew member must exit train and determine the safest route to be taken to evacuate passengers off the right-of-way, keeping in mind walking surfaces and surrounding area where passengers may have difficulties.
- Find a place to evacuate passengers that is away from the incident and off the right-of-way.
- Check the evacuation point for hazards such as electrical wires or other obstacles. If you are evacuating from a bridge, be particularly observant of the walking surfaces and surrounding area where passengers may encounter difficulties.
- Train air brakes must be applied and remain in emergency and the equipment must be secured with a minimum of two (2) handbrakes on each end.
- In cases of smoke, upper level passengers may be in greater distress and should be evacuated as soon as possible on bi-level cars. Direct upper level passengers down the stairs and merge them with the lower level passengers.
- Direct passengers through the connecting doors and through all cars as quickly as possible until the end of the train is reached.
- Remove the passengers to the right-of-way level either through the end, side or vestibule doors, whichever can be safely used by the passengers.
- Once it is determined that all train traffic is stopped and third rail power is removed, evacuation from a train onto an adjacent track then off a bridge or other elevated area will be appropriate.
- Keep injured people together. If a person complains of smoke inhalation or difficulty breathing, watch them closely.
- You may need to request assistance from passengers in attending to passengers with physical disadvantages.

PLAN ELEMENT 4 (continued)

B. Tunnels

100-L-4 Tunnel Alarm and Communications System

1. East River Tunnels
2. Flatbush Avenue-Atlantic Avenue Tunnels

100-L-5 - Fires in East River, Atlantic Avenue and Flatbush Avenue Tunnels

1. East River Tunnels
 - a. Fire Exists and Train is Able to Move
 1. Rule 409 in effect
 - b. Fire Exists and Train is Unable to Move
 1. Train Evacuation
 - c. Emergency Exits (see diagram)
 1. Tunnel Exits and Method of Evacuation
2. Flatbush Avenue and Atlantic Avenue Tunnels
 - a. Fire Exists and Train is Able to Move
 1. Rule 409 in effect
 2. Rule 410 in effect
 - Cab signals operative
 - Cab signals inoperative
 - b. Fire Exists and Train is Unable to Move
 1. Train evacuation
 - c. Emergency Exits (see diagram)

100-L-2

1. Fires on Trains
 - a. Multiple Unit Equipment
 - b. Diesel Equipment
 - Diesel equipment with under car power plants
 - c. Push-Pull Equipment (new fleet)

100-L-1

1. Fire Protection Equipment on Trains
 - a. Multiple Unit Cars
 - b. Diesel Engines
 - c. Push-Pull Equipment (new fleet)
2. Fire Protection Equipment in Tunnels
 - a. East River Tunnels

PLAN ELEMENT 4 (continued)

100-L-9

Emergency Information

1. Bi-level Coaches/FL-9 Locomotives
 - a. Emergency window exits
 - b. Emergency door procedures
 - c. Emergency exterior window entry
 - d. Emergency egress ladders
 - e. Emergency fire extinguisher
 - Bi-level coach
 - FL-9 locomotive
 - f. Emergency fuel cut-off - FL-9 locomotive

C. Electrified Territory

Procedures to be followed in the de-energizing or re-energizing of third rail power: The third rail must be considered energized (live) at all times except when it is known to be de-energized. When necessary to de-energize the third rail in an emergency to prevent injury or damage, the Movement Bureau must be notified immediately and the following procedures must be adhered to:

1. Individual requesting the removal of third rail power will notify the Movement Bureau, direct if possible, or through the Block Operator giving name, title, location and reason for the removal of third rail power.
2. The location requested for the removal of third rail power must be as specific as possible, indicating track number and any important physical characteristics in the areas.
3. After third rail power has been de-energized and all trains entering the area have been stopped and/or rerouted, the Movement Bureau will confirm to the individual who requested power be removed that the third rail has been de-energized. **Only after this confirmation has been received can the third rail be considered de-energized.**
4. Under no circumstances will Transportation Department personnel use shoe slippers to isolate M-1 cars from the third rail in order to de-energize a car or a pair of cars.

PLAN ELEMENT 4 (continued)

5. The individual who requested the removal of their rail power must remain in contact with the Movement Bureau and is the only person authorized to ask for restoration of power.
6. When it is feasible and safe to restore power and energize the third rail, the individual who had power removed must contact the Movement Bureau, either direct if possible, or through the Block Operator, informing them of the fact that all persons and/or equipment are clear of the third rail and it is safe to restore power. The person who removed power must be the only person authorized to restore power.
7. Once the Movement Bureau has been requested to restore power, the third rail must be considered energized. Only after a confirmation of power being restored may normal operations resume.

D. Securing Equipment

1. If necessary to abandon a train:
 - Apply hand brakes
 - Shut down locomotive/train (if directed to do so).

PLAN ELEMENT 5

LIAISON WITH EMERGENCY RESPONDERS 239.101(a)(5)

Long Island Rail Road has designated the office of its Chief Fire Marshal to fulfill the requirements of the "Liaison with Emergency Responders." The Chief Fire Marshal, as a primary responsibility, maintains a close working relationship with all Emergency Responders in LIRR's areas of operations. The Chief Fire Marshal will select and coordinate full scale Disaster drills with the local communities. Training of all emergency responders in assessing a train incident, in communicating with train crews, entering and exiting passenger equipment, controlling the area and general railroad safety will be handled by the Chief Fire Marshal and Director of Training and Development.

(See Appendix 4)

PLAN ELEMENT 6

ON-BOARD EMERGENCY EQUIPMENT 239.101(a)(6)

- A. LIRR has placed emergency tools in the seating area of all coaches
 - Type and description of LIRR emergency tools
 - 1. Fire extinguisher - 10 lb, dry chemical
 - 2. Pry bar - 18"

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PLAN ELEMENT 7

PASSENGER SAFETY INFORMATION 239.101 (a)(7)

- A. LIRR is educating its passengers to respond to an emergency in a positive and efficient manner. The methods employed are:
 - 1. Instructional, color signs with On-Board Train Emergency Instructions
 - a. These signs are constructed of a photo-luminescent material that will give off sufficient light to be visible for a minimum of 30 minutes.
 - b. These signs are placed directly on the panel providing access to the interior emergency door release. These door releases are located adjacent to the main doors in five-seat area adjacent to the vestibule of each coach.
 - 2. Pictograph and word signs of the proper way to operate an emergency window. Word signs also provide instruction on the removal of door panel windows.
 - a. These signs are constructed of a photo-luminescent material that will give off sufficient light to be visible for a minimum of 30 minutes.
 - b. These signs are placed directly on the upper portion the interior emergency exit windows.
 - c. The word signs are placed on the upper portion of the door panel window.
- B. LIRR's program includes the following vehicles for keeping our passengers informed.
 - 1. Periodic display of large, colorful posters containing emergency on-board instructions on the windscreens inside the vestibule, leading to the seating area.
 - 2. On-seat distribution of color brochure containing evacuation instructions as well as a detachable wallet-sized card with a summary of the emergency instructions.

PLAN ELEMENT 8

PASSENGER TRAIN EMERGENCY SIMULATIONS 239.103

LIRR has been actively involved in participating with local emergency responders who request our assistance and involvement with a disaster drill. The LIRR conducts four (4) disaster drills per year.

Training will involve:

1. **Simulations**
 - a. Reason
 - b. Detail the benefits of holding simulations
 - c. Emergency response agencies invited to participate
 - d. Regulatory compliance

LIRR's participants will include:

1. **Corporate**
 - a. President and Executive Vice President
2. **Operations**
 - a. Senior Vice President - Operations and Operating Chiefs for operations management.
 - b. System Safety and Training & Development to provide liaison with emergency responders and lend expert assistance for employee safety and operating rules.
3. **Materials Management**

Notified for assistance should anything be needed from the warehouse or emergency purchases needed.
4. **MTA Police**
 - a. For initial receipt and dispatch of emergency communications from outside sources to the appropriate emergency responders and LIRR employees.
 - b. For scene stabilization and control.
5. **Public Affairs**

To act as liaison between LIRR and all media agencies.

PLAN ELEMENT 9

DEBRIEFING AND CRITIQUE 239.105

General

The LIRR shall conduct a debriefing and critique sessions after each passenger train emergency situation or simulation to determine the effectiveness of its emergency preparedness plan and emergency responder training, and shall improve and/or amend its plan, as appropriate, in accordance with the information gathered. The debriefing and critique sessions shall be conducted within 60 days of the date of the passenger train emergency situation or simulation.

APPENDIX 1 (See page 4)

COMMUNICATION - 101(a)(1)(I) Initial & On-Board Notifications

- A. Between train crew members
 - 1. To assess the train emergency incident
- B. Between train crew and Control Center
 - 1. To notify the control center/dispatcher as soon as practicable by the quickest available means of the emergency incident.
- C. Between train crew and passengers
 - 1. To inform the passengers about the nature of the emergency and indicate what corrective measures are in progress.
 - a. As soon as practicable after the incident has occurred.
 - b. As information is received but not to exceed 10 minutes between announcements.
 - 2. These information messages to be performed when practicable and when not performing other required duties.
- D. Movement Bureau
 - 1. Will immediately stop all rail traffic on the affected route(s).
 - 2. Will contact:
 - a. Adjacent rail mode (Amtrak)
 - b. MTA Police Emergency Communications Center on extension 3300 or (718) 558-3300.
 - c. Appropriate LIRR officials and supervisors via predetermined automatic paging system and telephone numbers.
- E. MTA Police Emergency Communications Center will contact:
 - 1. Emergency responders

APPENDIX 2 (see page 6)

EMPLOYEE TRAINING AND QUALIFICATIONS - 101(a)(2)(I)

- A. Rail equipment familiarization
 - 1. Give multimedia presentation together with hand-outs on equipment familiarization, including on-board emergency equipment, emergency exits and evacuation techniques.
 - 2. Review communication procedures set forth in 49 CFR Part 239.101(a)(1).
- B. Situational awareness. Training in characteristics and appropriate responses to emergencies.
 - 1. Operating Rules and Special Instructions as appropriate.
 - 2. Standard Operating Procedures - Guidelines for all normal, abnormal and emergency operations.
 - a. Scenario
 - 1. Illness/injury
 - 2. Stalled train
 - 3. Sudden stop/Collision (bumping block).
 - 4. Trespasser Incident
 - 5. Derailment
 - 6. Fire/smoke
 - 7. Fire/smoke in Tunnel
 - 8. Derailment/collision with fire/smoke
 - 9. Derailment/collision with fire/smoke in Tunnel
 - 10. Derailment/collision with water immersion (Lead, Dutch Kills)
 - 11. Severe weather conditions/nature disasters
 - 12. Wires down on/entangled with train
 - 13. Smoke/fire on/adjacent to track
 - 14. High water
 - 15. Security concerns/assistance
- C. Passenger Evacuation
 - 1. Assess situation - communicate with other crew members
 - 2. Communicate with Movement Bureau
 - 3. Assess limitations and injuries to passengers/crew
 - 4. Provide the safest route and destination
 - 5. Meet and coordinate functions with emergency responders and supervision

APPENDIX 2 (continued)

D. Coordination of Function (Protocol and Responsibilities)

Conductors will initially be in charge of coordinating operations and responsible for contacting the Movement Bureau to provide adjacent track and third rail protection. The Conductor will advise the passengers of the nature and severity of the incident and periodically update passengers as the incident progresses. The Engineer will maintain contact with the Movement Bureau and Emergency Responders.

1. Conductors

- a. Responsible for protecting train and adjacent track.
- b. Assess emergency situation and advise Movement Bureau as soon as possible by the quickest means available.
- c. Keep passengers safe and informed.
- d. In charge of incident until advised by the local Police or Fire agency that they now have the incident under their command and control. (Check credentials and take name.)
- e. Remain at scene to act as liaison between railroad and emergency responder until relieved by supervision.
- f. If necessary to evacuate train, be sure it is properly secured first.

2. Other Crew Members

- a. Assist the conductor in assessing the incident and in keeping the passengers safe and informed.

3. Engineer

- a. Maintain contact with Movement Bureau.
- b. Act as liaison via radio between Control Center/Dispatcher and on-scene emergency responders until relieved by supervision.
- c. Secure train before leaving when evacuation is called for.

4. Movement Bureau/Dispatcher

- a. Promptly and efficiently notify the appropriate personnel for the reported incident.
- b. Keep accurate records as the incident progresses.

E. "Hands-On" Instructions

1. Employees will receive hands-on training instruction concerning the location, function and operation of on-board emergency equipment, stressing the following:

APPENDIX 2 (continued)

- a. Recognition of emergency markings and decals on emergency windows, door release handles and emergency tools.
 - b. Opening emergency exits, windows and doors emphasizing adverse conditions.
 - c. Use of emergency tools and fire extinguishers.
 - d. Use of portable lighting (flashlight) when the main power source is out.
 - e. Use of public address system or bullhorns if provided.
2. Hands-on training will be done utilizing full-scale equipment or mock ups.
3. Hands-on performance must be completed within 5 days of classroom training.
4. A record will be retained with the results of the qualifying exam grade of the employees participation with regards to the hands-on portion of this program.

APPENDIX 3 (see page 6)

EMPLOYEE TRAINING AND QUALIFICATION - .101(a)(2)(ii)

Train Dispatchers are given physical characteristics training in the form of formal classroom instruction and field instruction (trainees). This physical characteristics training includes instruction on applicable operating rules, timetable special instructions and other relevant documents. Qualified Train Dispatchers supplement this training during the year with road days, and available video tapes. Line charts, interlocking print, third rail prints and grade crossing location books are at the disposal of each Train Dispatcher while on duty in the event trains must be stopped in a given area.

- A. Dispatch Territory familiarization
 - 1. Video tape - Copies of appropriate branch tapes are available upon request.
 - 2. Distribute operations profile of specific physical characteristics and dispatching territory.
 - a. Discuss physical characteristics of all areas combined with field trips. Particular attention paid to areas with certain restrictions, ie: bridges, haz-mat locations, elevated right-of-way etc.
 - 3. All new Operations Center employees must be fully qualified on all sections prior to working as a Train Dispatcher.
- B. Operations Center Protocol
 - 1. All Operations Center personnel fully conversant on procedures in dealing with outside agencies and internal departments.
 - a. Dispatchers must immediately advise their superior (Chief Train Dispatcher) should they become aware of any situation or incident that may affect the health or safety of any passenger or employee.
 - b. Dispatchers must immediately advise their superior (Chief Train Dispatcher) should they become aware of any situation or incident that may adversely affect the safe operation of that portion of the railroad over which they have direct control.

APPENDIX 4 (see page 11)

LIAISON WITH EMERGENCY RESPONDERS - .101(5)(I)

Developing and making available a training program for all on-line emergency responders who could reasonably be expected to respond during an emergency situation.

LIRR has developed a training program as follows:

<u>Title:</u>	Emergency Procedures & Familiarization for Emergency Responders
<u>Purpose:</u>	Provide an overview of normal and emergency procedures to facilitate safe emergency operation while on rail road property.
<u>Objectives:</u>	<ul style="list-style-type: none">- To familiarize emergency service personnel with normal operations, communications and procedures, power distribution systems and railroad equipment.- To familiarize emergency service personnel with types and severity of events involving rail road property, equipment and personnel, which may require the aid and assistance of fire, rescue and emergency service personnel.- To familiarize emergency service personnel with tunnels and emergency exits in order to expedite passenger flow in cases of emergency evacuations.
<u>Participants:</u>	New York City Fire Department, Nassau and Suffolk Fire Departments, Police Emergency Services and Emergency Medical Services.
<u>Program Length:</u>	4 hours
<u>Training Location:</u>	Individual fire departments, Nassau and Suffolk County Fire Academy, Hillside Maintenance Complex, Penn Station
<u>Schedule:</u>	Coordination with various emergency response agencies.
<u>Conduct of Instruction:</u>	Slides and lectures, hands-on field training, field trip to tunnels (when applicable).

APPENDIX 4 (continued)

COURSE OUTLINE

- I Scope of Operations
 - A. Company goals
 - B. Facilities
 - C. Organization
 - D. Control

- II Equipment
 - A. Locomotives
 - B. Power Units
 - C. M-1, M-3 Rail Cars
 - D. Diesel Hauled Cars
 - E. Freight
 - F. Other equipment (bi-levels, dual mode locomotives)

- III Power Distribution
 - A. Electrified operations (AC & DC), third rail/catenary
 - B. High voltage transmission lines
 - C. Power Director

- IV Emergency Procedures
 - Determining nature and severity (size up)
 - Establishing communications
 - Communicating needs to railroad
 - Safety procedures (remove power), stabilization of equipment
 - Gaining access to equipment
 - Emergency evacuation options

- V Summary and Review

- VI Hands-On Equipment Familiarization
 - A. Equipment stabilization
 - B. Access/Egress
 - C. Evacuation

APPENDIX 4 (continued)

Inviting emergency responders to participate in emergency simulations .101(5)(ii)

- D. LIRR contacts either the local Fire or Police departments in the area we have targeted for a simulation approximately 3 months in advance of our target date for the simulation.
- E. The responders begin inviting participants from their Mutual Aide Backup Systems
 - 1. Other fire, police, and emergency response agencies
 - 2. Hospitals, clinics, doctors and nurses are invited
 - 3. Municipalities are invited to participate
 - a. Public Works
 - b. Mayors Office
 - 4. Monthly meetings are scheduled
- F. LIRR employees from several departments participate in each phase of planning
 - 1. They attend meetings
 - 2. Placed on committees
 - 3. Keep other LIRR employees informed.

Liaison with Emergency Responders - .101(5)(iii)

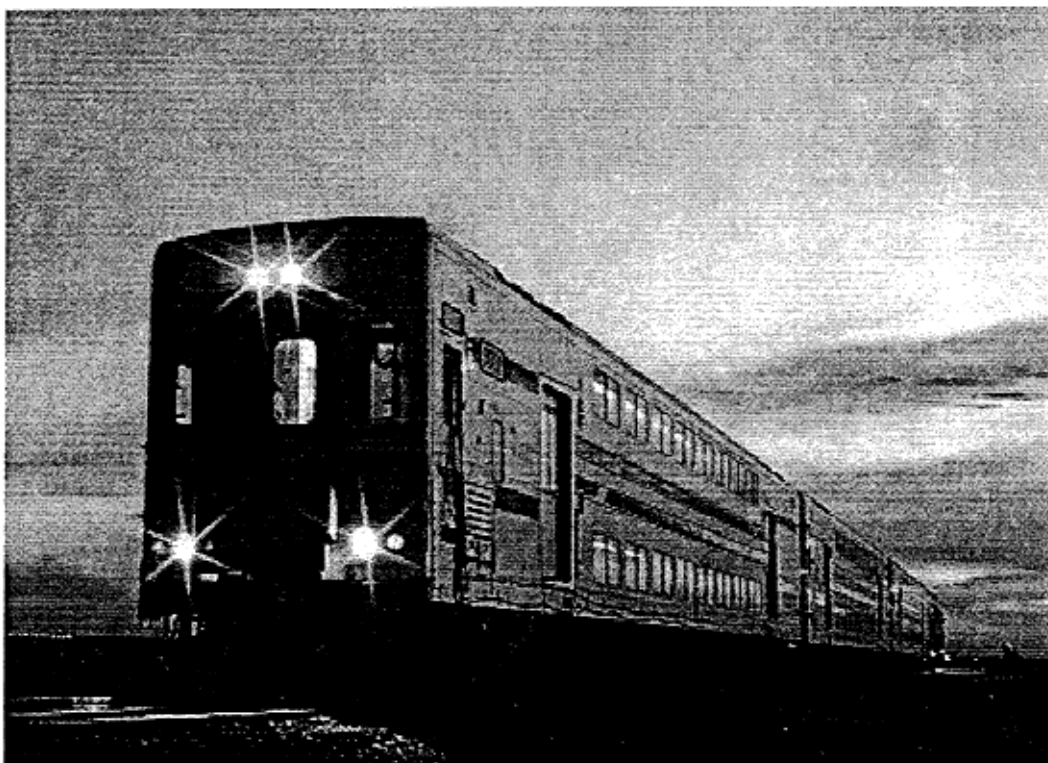
Distributing applicable portions of its current emergency preparedness plan.....

- A. LIRR has compiled a mailing list of all emergency response agencies that could reasonably be expected to respond to an emergency situation. Those lists were gathered through our working relationship with various agencies and through our training program.
- B. As the plan is finalized, all the agencies that we have on file will receive a copy of the approved plan. The plan will be discussed during various meetings and throughout our continuing training with these agencies.



Long Island Rail Road

Safety Awareness and Emergency Response Operations



Training Program

Student Manual

April 1, 1999



Section 1

Equipment and Operations

Daily Operations

The Long Island Rail Road holds the distinction of being the busiest railroad in North America. It carries more than 265,000 passengers each weekday on 740 scheduled trains.

Chartered on April 24, 1834, the LIRR was originally built to provide a rail connection to the ferry in Greenport. This was to be the primary transportation route from New York City to New England. However, before construction was completed, the railroad on the opposite shore was completed and began operating. As a result, the line to Greenport was never able to operate profitably.

The Long Island Rail Road as we know it today is actually a consolidation of several smaller railroads, each built for their own purpose. This included transportation of crops when Long Island's economy was largely agricultural. Later, as the island developed, the rails were used to transport building materials. Alexander Stewart, who developed Garden City, built his own rail line to connect with his brick plant in Old Bethpage.

Eventually, as people who worked in New York City

moved to Long Island, the LIRR's primary customers became commuters. Today the LIRR operates 11 branches which stretch from Manhattan to Montauk, 120 miles to the east. There are 130 stations on more than 300 miles of main track.

Right-of-Way and Track

Track is built on a roadbed made from stone called ballast. The ties hold the rails in place at a fixed distance or gauge which is 56.5 inches. Most ties are wood protected from rot with creosote, a tar like combustible substance. Wood ties have a life of approximately 25 years. In some areas, concrete ties are now being used because their life is projected to be 50 years.

The wheels of the train travel on the 2 running rails. Electronic signals which communicate with moving trains are transmitted through the running rails as well. Electric trains receive their power from the third rail which is slightly elevated and carried on insulators attached to ties on one side of the track.

Long Island Rail Road Daily Operations

265,000 Passengers Each Weekday
740 Scheduled Trains
268 Equipment Trains
11 Branches
130 Stations
Over 300 Miles of Main Track



The third rail carries 700 volts DC which is used to power electric trains.

Although tracks turn in every direction, travel is always described as east or west, regardless of the actual compass direction. **RAILROAD EAST** always means away from New York City, and **RAILROAD WEST** always means toward New York City.

Railroad East = Away from New York
Railroad West = Toward New York

Care should be taken not to refer to tracks in terms "westbound " or "eastbound". The LIRR has the ability to operate trains in either direction. Reverse operations are used in double track territory every day for several reasons. Tracks are designated by branch and track number. To assist with pre-planning, fire departments may wish to obtain the correct

designations from the rail road for tracks within their district.

Equipment

Equipment operated by the LIRR includes 932 high speed electric passengers cars, 144 bi-level diesel hauled passenger cars and 46 passenger service diesel locomotives. Half of these locomotives are "dual mode" which enables them to operate from either their own engine or draw power from the third rail. Support equipment includes switching and utility locomotives, track equipment, inspection equipment and cranes.

Electric passenger cars all operate as "married pairs". This is necessary because two cars are required to carry all the components necessary to make a complete unit. One car is the "A" car and has an even number. The "B" car is odd numbered and has a rest room. The even numbered "A" car always faces railroad east. Both cars have a control cab for an engineer so that they can travel in either direction without the need to be turned around. This means that every car in the electric fleet has a control cab.

Earlier electric cars are known as M-1. They were purchased from 1968 until 1972. They are numbered 9001 through 9770.

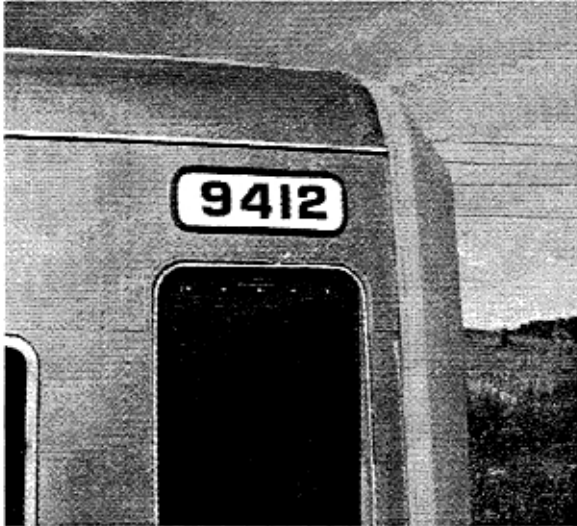
M-3 cars were purchased after 1984. They are numbered 9771 and above. The biggest difference with the newer cars is the presence of emergency door releases on the exterior sides of the car and emergency

LONG ISLAND RAIL ROAD EQUIPMENT

932 High Speed Electric Passenger Cars
144 Bi-Level Diesel Hauled Passenger Cars
26 Diesel Electric Locomotives in Passenger Service
26 Dual Mode Diesel Electric Locomotives
300 Freight Cars per Day



escape windows which can be opened from the interior. In addition to their car number, M-3 cars can be recognized in most cases by the control cab window which slides open horizontally.



All locomotives and cars have a unique identifying number. Equipment numbers on the ends can be used by the Movement Bureau to identify a train.

In diesel territory, bi-level passenger cars are utilized. The first generation of these cars are known as C-1. They are numbered 3001 - 3010. Newer models, known as C-3, are numbered in the 4000 series. Certain cars have control cabs to operate the locomotive on the opposite end of the train; these cars are numbered in the 5000 series.

All passenger cars on the LIRR are constructed from stainless steel. Use of saws or chisels to penetrate the

car skin will not be successful. Doors on each end of a train are locked, and forcible entry is not practical. Entry from the right-of-way through doors between cars is not safe. Access into all passenger cars is best through side doors. Door window glass can easily be removed if no outside release is present.

The Long Island Rail Road utilizes "push-pull" service for its diesel equipment. This eliminates the need to turn locomotives around or reposition them at the end of a run. Normally, trains are pulled away from New York and are pushed toward New York. Usually you will find the locomotive at the east end of the train; however there may be exceptions. At times there may be multiple locomotives, in tandem or at each end.

All locomotives on the LIRR are diesel electric. An engine driven generator provides electric power to traction motors on the axles. DE 30 locomotives are numbered 400 through 422. Half of the locomotives in passenger service can also be powered by the third rail; these DM 30 dual mode locomotives are numbered 500 through 522.

Other locomotives are utilized for work trains, switching and other miscellaneous service.

Because they often look the same, every type of car and locomotive has specific designations which identify its ends. Depending on the type of equipment, one end is designated as either "F" or "A". The opposite end is always designated as "B". An "F" end is always marked. The hand brake is always located at the "B" end.

Car ends do not designate the direction of travel of the

LONG ISLAND RAIL ROAD SUPPORT EQUIPMENT

**Switching and Utility Locomotives
Track Equipment
Inspection Equipment
Cranes**



train. Married pairs have an "F" end on each end.

Locomotives pushing a train will have their "F" end at the back of the train. Many locomotives are designed for full operation in either direction; however they have only one "F" end.

End designations are useful for locating essential components such as hand brakes, cab controls and emergency fuel cut-offs. When used with the car or locomotive numbers, they provide a means to identify a train by sectors under the Incident Command System, similar to the way a structure is described by sides.



Car end designations, when used with equipment numbers, are helpful for identifying sectors of a train and for locating essential components.

Freight

In 1997, the Long Island Rail Road franchised its freight operation to the New York and Atlantic Railroad, a private operator. Approximately 300 freight cars are on the line each day. A major cargo is Liquified Petroleum Gas (LPG) which is hauled to dealers for distribution to retail customers.

The New York and Atlantic Railroad operates its own locomotives which operate similar to Long Island equipment.

Safety

Safety of the public, employees and emergency responders is always a primary concern. The LIRR has a sophisticated signal system which prohibits multiple trains from operating in the same block, or section of track. The system is designed to avoid major

collisions, such as those experienced in the 1950's in Rockville Centre and Richmond Hill. Reverse signaling permits full operation in either direction. This provides great flexibility to operations, but emergency responders must understand that a train should be expected in either direction, on any track. There are at least 268 equipment trains each week day which do not appear on published timetables. Consequently, a train should be expected at any time.

Automatic Speed Control will stop a train which exceeds the designated speed limit. A warning bell signals the engineer that the train is moving too fast. If it does not slow within 6 seconds, it will come to a halt automatically.

The training program offered to emergency responders identifies hazards which exist on rail equipment and property. The procedures taught are intended to minimize potential injuries to responders and to enable them to perform their operation as effectively as possible.



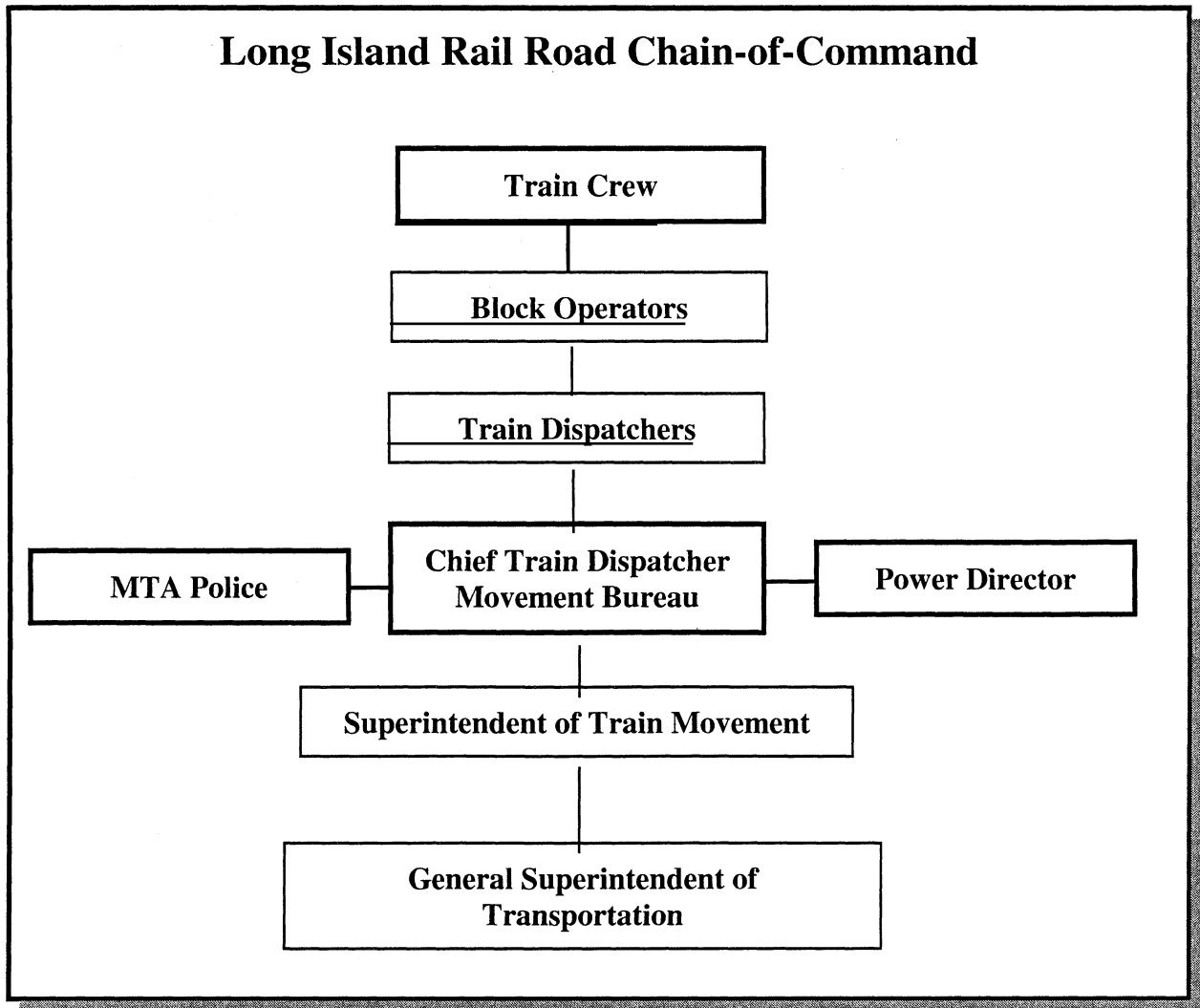
Reverse signaling permits full operation in either direction.

Chain of Command

Like the fire service, the Long Island Rail Road operates with a specific chain of command which begins with the train crew. At any incident where a train is present or involved, the first contact should be made with the crew, if possible. These people have the ability to communicate by radio with the Movement Bureau, they have keys to gain entry to secure areas, and they are a valuable resource for information.



Long Island Rail Road Chain-of-Command



They are also trained in emergency procedures, including interaction with fire, police and medical personnel.

Conductors and **Assistant Conductors** wear a uniform with a distinctive hat plate. The conductor is in charge of the train.

The **Engineer**, who operates the train, does not wear a uniform and should be found in the cab at the forward end. There is a control cab at each end of the train, either in a car or a locomotive, so it is important to determine the direction of travel in order to locate the engineer.

All railroad managers carry photo identification which

shows their name and title.

The next level of command are the **Block Operators** in the switch towers. They control traffic within specific blocks of track. They are supervised by 4 **Train Dispatchers** who are located in Jamaica.

The **Chief Train Dispatcher** at the **Movement Bureau** in Jamaica is the individual who should be contacted if the train crew is incapacitated or not present. This person has direct contact with the **MTA Police** and the **Power Director** who controls the third



**Emergency Service Personnel
Should Communicate with the LIRR
through the
Movement Bureau
by calling
(718)-558-8204**

**Problems which involve Freight or the
New York and Atlantic Railroad
Should be Communicated Through the
LIRR Movement Bureau**

Rail Road Emergency Actions

- **Stop Order (Block):** Stops all trains on a specific track in a specific area.
- **Slow Order:** Slows all trains on a specific track in a specific area.
- **Third Rail Power Removal:** de-energizes electric power to the third rail on a specific track in a specific area.

rail power system. The Chief Train Dispatcher can be contacted directly by telephone at **(718)-558-8204**. Incidents which involve freight or the New York and Atlantic Railroad should also be communicated through the LIRR Movement Bureau at the same telephone number.

Nassau County Firecom has a direct line telephone and radio capability with the Movement Bureau as well.

The Chief Train Dispatcher reports to the **Superintendent of Train Movement**, who in turn reports to the **General Superintendent of Transportation**.

**Rail Road Emergency Actions**

There are certain orders that can be issued by the Movement Bureau to assist emergency responders at the scene of an incident. These include:

- ▶ **STOP ORDER.** (also known as a **BLOCK**). This will stop all trains on a **specific track** in a **specific area**.
- ▶ **SLOW ORDER.** This requires that all trains on a **specific track** in a **specific area** travel at reduced speed.
- ▶ **THIRD RAIL POWER REMOVAL.** This action de-energizes electric power to the third rail on a **specific track** in a **specific area**. **IT DOES NOT STOP TRAINS!** Diesel trains do not require power from the third rail; they continue operation unless a stop order is also requested.

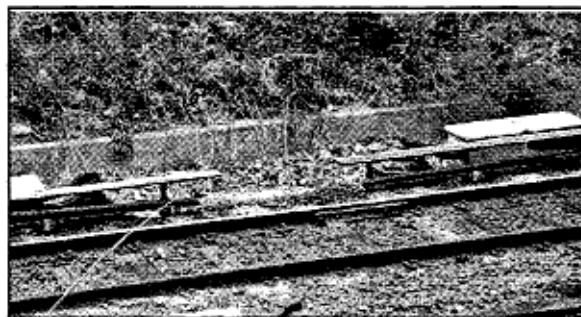
The above orders may be requested by the incident commander, who must provide certain information to the Movement Bureau. This includes:

- ▶ Location of incident, using rail road landmarks (stations, crossings, etc.)
- ▶ Type of incident
- ▶ Type of action requested
- ▶ Name and rank of person making the request

When a request is made it is essential to **WAIT FOR CONFIRMATION** from the Movement Bureau that

the action has been taken before beginning operations on rail road equipment or right-of-way. Trains must be located and contacted, and confirming signals must be received that electric power is off. Until they are stopped, electric trains can bridge third rail sections and re-energize the section at the incident site. The Chief Train Dispatcher may wish to allow one or more trains to leave the affected area to minimize the impact on service.

Confirmation is essential to the safety of all personnel operating at the scene!



Moving trains can "bridge" third rail sections and re-energize a section where power has been removed.

Only the person who makes a request can authorize restoration of power or service. This may be transferred to the railroad when a representative arrives on the scene; however the Movement Bureau must be notified of this transfer by the person who made the original request.

**IT IS ESSENTIAL TO WAIT FOR
CONFIRMATION OF ACTION
BEFORE STARTING OPERATIONS!**

**ONLY THE PERSON WHO REQUESTS ACTION
CAN AUTHORIZE RESTORATION.**



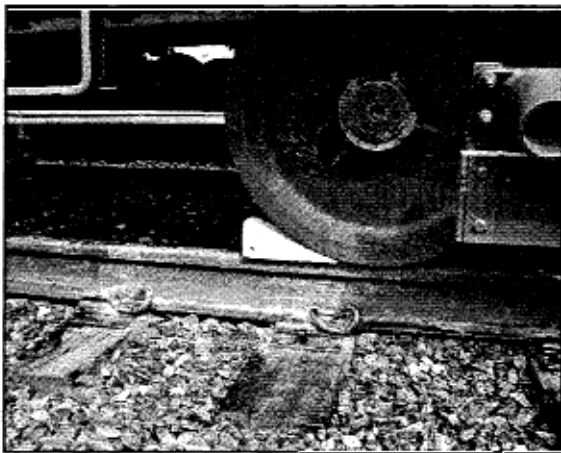
Section 2

Hazards on Railroad Property

Operations on railroad property and equipment involve all the dangers normally encountered in emergency situations. This includes products of combustion. For example, a fire involving electrical wiring emits the same toxic substances encountered with insulation material at a fixed location. Use of SCBA is a must!

STABILIZATION

As with any incident involving a vehicle, rail cars should be stabilized to prevent movement. **Wheels should be chocked** on both sides of the truck. **Hand brakes should be set** on at least four cars, 2 each end of the train. On passenger cars and most locomotives, the hand brake is a ratchet handle which should be pulled several times until it is tight. On most freight cars, the hand brake is a wheel which should be turned until it is tight.

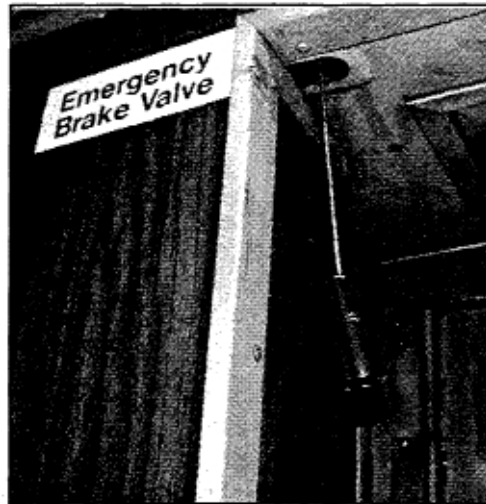


Wheel chocks must be placed firmly on both sides of truck.

The **Emergency Brake Valve** releases air from the service brake system, causes the brakes to engage and the train to come to an emergency stop. Injuries are possible to passengers and crew during an emergency stop. Emergency brake cords hang from the ceiling inside passenger cars.



Hand brakes should be set on at least 4 cars to stabilize the train.

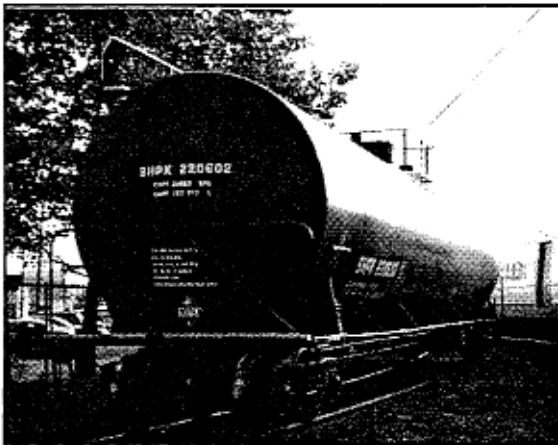


The Emergency Brake Valve sets the service brakes.

HAZARDOUS MATERIALS will be found on rail property as they would at any industrial or commercial facility. This can include cleaners, solvents, paints, etc.

Some freight cargo is hazardous, the most common being LPG or propane. Responding members should follow the skills learned in Hazardous Materials Operations training. Rail cars carrying a haz-mat will be placarded on all sides. The train crew will have the waybill just as a truck driver would have a bill of lading for the cargo being carried.

Every freight car has an identifying number which can be used to identify its cargo. This information can be supplied by either the LIRR Movement Bureau, or CHEMTREC.



Freight cars have a serial number which can be used to identify their contents. Cars carrying hazardous materials are placarded on all sides.

There are additional hazards which are found on rail road property. These include electric power, movement of trains, and the right-of-way.

ELECTRIC POWER exists in many places on the railroad, and it presents a danger to emergency responders in several ways:

THIRD RAIL

The **third rail** carries **700 volts DC**, enough to kill a person instantly. DC power is used because it does not arc easily. However, this allows a person or a tool to get dangerously close to the rail. **Never allow any part of your body or a tool to come in contact with the third rail!**

Protection boards protect the third rail from the weather. They are not intended to carry the weight of a person. **Never sit or stand on third rail protection boards!**

When it is necessary to cross a third rail, first be certain that no train is coming. Always watch where you step. Straddle the rail and cover. Hold tools firmly high and away from the rail.

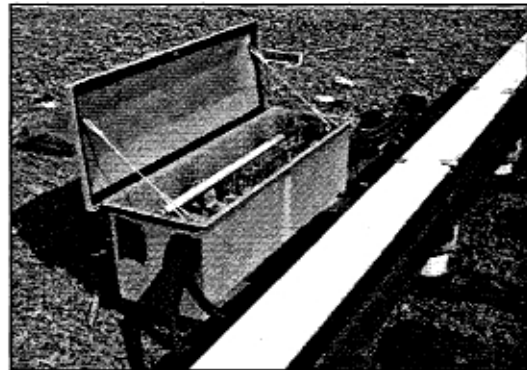


The correct way to cross the third rail.

In certain locations, boxes alongside the third rail contain knife switches for use by rail road employees only. **Emergency personnel should never attempt to operate knife switches.**

**NEVER OPERATE NEAR
ANY ELECTRICAL
EQUIPMENT
UNTIL POWER IS
CONFIRMED OFF
THEN
PROCEED
AS IF THE
POWER IS ON!**

Power from the third rail to the electric cars and dual mode locomotives is “picked-up” by contact shoes on the trucks, between the wheels. Electric M-1 and M-3 cars operate as **married pairs**. All 8 contact shoes on both sides of a married pair (4 each side) become energized whenever 1 or more shoes contact the third rail. Likewise, all 4 shoes on a dual mode locomotive, again on both sides (2 each side), become energized whenever 1 or more shoes contact the third rail. These shoes must never be used as a step since they carry a lethal electric current, even on the side opposite the third rail.

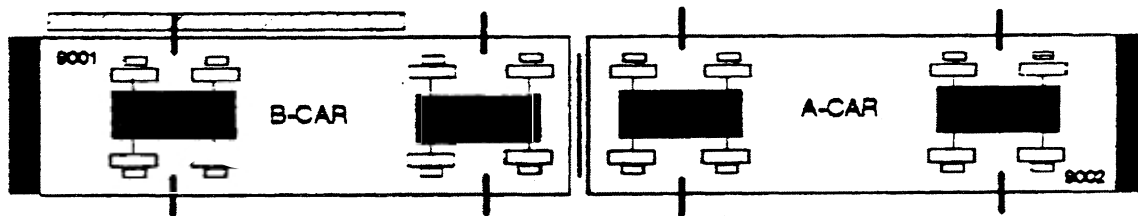


Never attempt to operate knife switches.

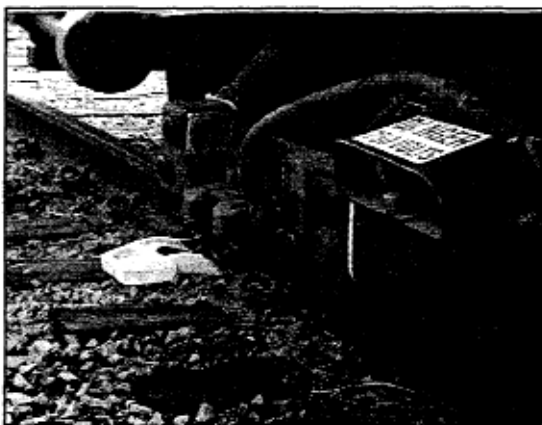
Until third rail power is removed, extreme caution must be used at any wreck scene. If the rail car body, a vehicle or a victim has become energized by the third

rail or a contact shoe, personnel attempting a rescue can receive a fatal electric shock. There have been fatal auto accidents on Long Island caused by

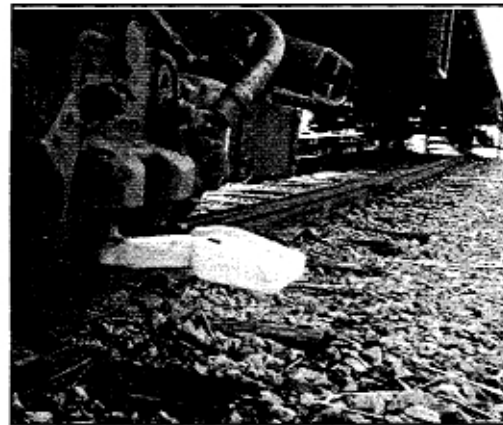
Third Rail Contact Shoes



All 8 contact shoes of a married pair of M-1 or M-3 electric cars become energized whenever 1 or more shoes contact the third rail.



Contact shoes are located on both sides of each truck between the wheels.



Always consider **ALL** contact shoes to be energized.

electrocution where a car has inadvertently been driven onto the tracks and come in contact with the third rail.

PRIOR TO OPERATING ON THE TRACKS IN THIRD RAIL TERRITORY, THIRD RAIL POWER SHOULD BE REMOVED.

LOCOMOTIVES

All LIRR diesel locomotives are actually diesel-electric. The on-board engine drives a generator which creates voltages up to 2600 volts. The new DE 30 and DM 30 locomotives produce AC current; the older locomotives produce DC current. Traction is accomplished through electric motors on the axles, the same as electric equipment. Electric voltage remains as long as the diesel engine is running.

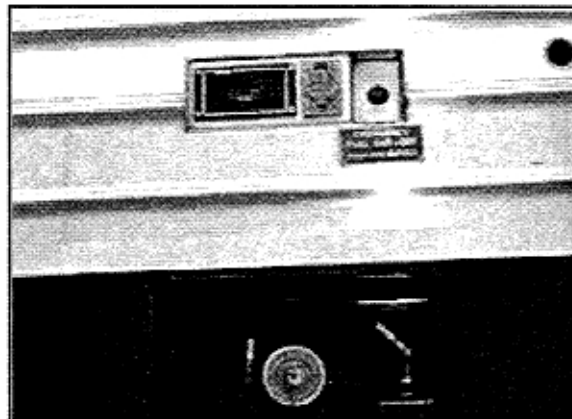
In addition, 480 volts AC is supplied by the locomotive to passenger cars. This is called hotel power and is used for lighting, heating, air conditioning and communications equipment. As a result, **all diesel equipment (locomotives and cars) carry high voltage throughout the train.** Power is transmitted from the locomotive to the cars and between cars through jumper cables. Never attempt to disconnect or stand on these cables.

Electrical hazards on locomotives are removed by shutting the locomotive down. This is done by pressing and holding one of the **Emergency Fuel Cutoff and Stop Buttons** until the engine stops. Emergency fuel cutoffs are located outside the locomotive on each side and in the cab

A fuel level gauge is located at the outside cutoff which shows how much fuel remains in the tank. On the DE-30 and DM-30 locomotives the gauge is electronic; therefore the reading must be obtained before the engine is stopped.

When a locomotive is stopped, loss of air pressure and release of brakes is possible. **It is essential to set hand brakes and chock wheels to prevent the train from moving.**

Dual Mode Locomotives are also powered through



To shut-down a locomotive, push and hold the Emergency Fuel Cut-Off until the engine stops completely.

the third rail. In addition to shutting down its engine, third rail power must be removed at incidents which involve this equipment in third rail territory.

POWER SUB-STATIONS

Power for the third rail comes from substations located along the right-of-way. Input power comes in at Primary Voltages from the Long Island Power Authority (LIPA) or Con Edison. It is stepped down and converted to 700 volt DC third rail power at 13,000 amps. Because extremely high voltages exist in sub-stations, no entry should be made into the area and no attempt made to extinguish a fire until power has been confirmed to be off. There are no PCBs in transformer oil at Long Island Rail Road sub-stations.



Because of the extremely high voltages present, there should be no entry or firefighting at an electric sub-station until power is confirmed to be off.

ELECTRIC TRANSMISSION LINES

The Long Island Rail Road has its own communication

lines on poles along its tracks. However, it does not own the electric transmission lines which are commonly found along its right-of-way. It should be remembered that these lines carry extremely high primary voltages, and will pose a significant threat to members' safety should they come down during an incident.

BATTERY POWER

Batteries on passenger cars supply emergency lighting and communications equipment. Battery voltage on the C-3 diesel hauled cars is 74 volts, which can emit a serious electrical shock.

MOVEMENT OF TRAINS

Trains must be expected at **ANY TIME**, on **ANY TRACK**, traveling in **EITHER DIRECTION**.

EXPECT TRAINS

**ANY TIME
ANY TRACK
EITHER DIRECTION**

Always watch for an approaching train!

Every day, there are over 250 trains which do not appear on printed timetables. These include empty or "deadhead" trains being relocated for storage or positioned for rush hour service. There are also work trains and inspection equipment which can be found anywhere in the system at any time.

At certain times two or more tracks are used for travel in the same direction to handle the volume of trains. Also, reverse signaling permits trains to operate in either direction on most tracks. Reverse operations are used during construction, emergencies and any time one or more tracks must be taken out of service.

The Movement Bureau is aware of the location of every train, which is why it is essential to contact them prior to operating on or near the tracks.

When working on or near the right-of-way, the scene must be protected. **ESTABLISH A SAFETY ZONE WITH A WATCH IN EACH DIRECTION.** One member in full turnout gear for protection and identification must be sent 2,500 feet down the track(s) in each direction. The distance is required to allow a train sufficient time to stop. The safety person should be positioned to have a clear view down the track; this could require going a further distance in order to see around a curve where sight is limited.

The safety person should have a hand light and flares to signal an approaching train to stop and a portable radio to communicate with the Command Post.

To stop a train wave a light horizontally back and forth at the approaching train. Train crews know that any object being waved violently on or near the track by any person is a signal to stop. **Do not stand on the track.** Stand on the side at least 6 feet from the track. Trains need long stopping distances and it may not be able to stop directly at the person giving the signal.

A lit flare placed in the center of a track signals an approaching train to stop. The crew must stop and investigate. However, it is essential for safety personnel to remain in place until recalled by the Incident Commander since the train may continue if no problem is evident.

To stop an approaching train, wave a hand light horizontally back and forth *FROM THE SIDE OF THE TRACK.*

ESTABLISH A SAFETY WATCH 2,500 FEET IN EACH DIRECTION

Safety Personnel Must Have:

**Full Turnout Gear
Hand Light
Flares
Portable Radio**

weight and momentum, trains cannot stop quickly. At many locations or during poor weather, a vehicle or person on a crossing may not become visible to the engineer until it is too late. No matter what the emergency, it is never safe or justified to go around railroad gates which are down or signals which are flashing. Not only is injury or death to the responders possible, but response to the original emergency is also interrupted.

ACCOUNTABILITY

Consistent with the Incident Command System, and safe operations, an accountability system should be used to monitor personnel operating on rail road right-of-way. This can be a tag system similar to that used by firefighters at structure fires. Where multiple agencies respond, coordination through the Incident Command System becomes essential for the safety of all personnel. **Service and power must not be restored until it is certain that all personnel and equipment are clear of the tracks.** A visual check by the safety officer should be considered.

It is also not legal. The New York State Vehicle and Traffic Law does not permit the operator of an emergency vehicle to ignore signals at a railroad crossing. You must stop and wait for the train to pass!

Tragic accidents also happen when people cross the track after a train passes and do not realize that another train is coming on another track. This happens both with vehicles and pedestrians. Always beware that a second train may be coming.

GRADE CROSSINGS

Unfortunately, accidents at grade crossings occur all too often. Nationwide, there have been several fatal collisions with emergency vehicles. Because of their

GRADE CROSSING SAFETY

- 1. Never go around gates which are down or cross tracks when signals are flashing.**
- 2. Always beware that a second train may be coming on another track.**

TRAINS CAN'T STOP – YOU CAN!

**SERVICE AND POWER MUST NEVER BE RESTORED
UNTIL IT IS CERTAIN THAT ALL PERSONNEL
AND EQUIPMENT ARE CLEAR OF TRACKS!**

A visual check by the safety officer should be considered.

RIGHT-OF-WAY

Several hazards exist on railroad tracks and along the right-of-way. Loose ballast stones are a tripping hazard. Ties are not spaced for easy walking; you must concentrate and watch your path as you walk along the track.

Steep embankments and uneven surfaces border most tracks. This creates tripping hazards and can make balance difficult. Care must be taken to prevent falls, especially near live third rail and active tracks.

Moving trains stir up dust and debris. To avoid eye injuries, when a train approaches, look away until it passes

BRIDGES and TUNNELS

Persons on bridges or in tunnels usually cannot escape from the path of an oncoming train. Entry to these areas is extremely dangerous unless a STOP ORDER has been requested and CONFIRMATION RECEIVED. Remember, expect a train anytime from either direction!

SWITCHES

Switches, which direct trains from one track to another, have moving parts driven by powerful electric motors. Some are controlled by the block operators, often several miles away. Others are automatic and are activated by approaching trains. In both cases, the switch moves without warning. Serious injury will result to a person's foot or other part of their body if it becomes caught within the switch. **Never walk through a switch.** Always walk around it.

Certain dangers on railroad property can be removed. Others cannot. Emergency personnel must be constantly vigilant to the many hazards that can harm

them. Full protective equipment, safe work practices, communication with the LIRR and use of the Incident Command System will minimize the risk of injury to those who respond to emergency incidents which involve the rail road.



Switches have moving parts which can cause serious injury.

***REMEMBER,
YOUR SAFETY COMES FIRST!***



Section 3

Emergency Response

Fire, police and EMS personnel may be called to several types of emergency situations on rail road property and equipment. This can include fires, derailments, collisions involving rail equipment, people or vehicles struck by trains, and medical emergencies onboard a train.

IMMEDIATE COMMUNICATION WITH THE LIRR MOVEMENT BUREAU IS ESSENTIAL!

Serious hazards exist on the rail road, especially train movement and third rail power. For their own safety, emergency responders must never enter right-of-way or operate on rail equipment without knowledge of the rail road.

**THE LIRR MOVEMENT BUREAU CAN BE
CONTACTED BY TELEPHONE AT
718-558-8204.**

Communication with the Rail Road must be established by the Incident Commander immediately upon arrival at the scene. When present, the train crew is always the first link. If there is no crew or they are incapacitated, make contact with the Chief Train Dispatcher at the Movement Bureau. The Chief Train Dispatcher will need to know:

- ▶ Location and type of incident
- ▶ Rail road equipment involved
- ▶ Rail road action required
- ▶ Location of the Command Post
- ▶ Staging area for rail road equipment
- ▶ Name and rank of the Incident Commander

Entry and operations must not begin until confirmation is received from the rail road that the necessary actions have been taken by them to stop or slow trains or remove third rail power.

FIRES

Right-of-Way fires can involve ties, brush or rubbish. These should be fought in the usual manner; however

the hazards encountered on rail road property must be considered, and the proper precautions taken. Special consideration must be given to third rail power and movement of trains in the area.



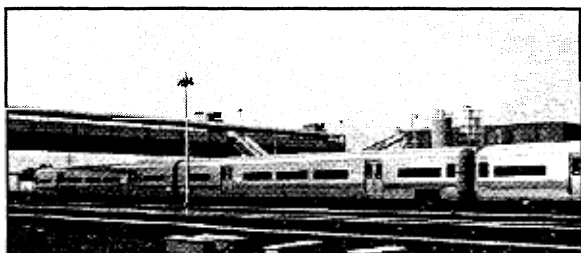
Use dirt or sand to extinguish tie fires.

The best way to extinguish a tie fire is to cover it with dirt to smother it. Do not overhaul ties by chopping or cutting them. Notify the Movement Bureau so that the track can be inspected.

Equipment fires should be viewed as structure fires with certain considerations.

Passenger cars are constructed of heavy gauge stainless steel. An interior fire will be exceptionally hot. Cutting the skin for entry or ventilation is not practical. Vertical ventilation is not possible. Although they are almost impossible to cut, side windows will melt as heat builds up, and door windows can be pushed in. As a result, ventilation is best accomplished horizontally.

The best way to attack the fire is horizontally from one adjoining car; be careful not to oppose lines. Hose lines should be positioned and charged prior to opening

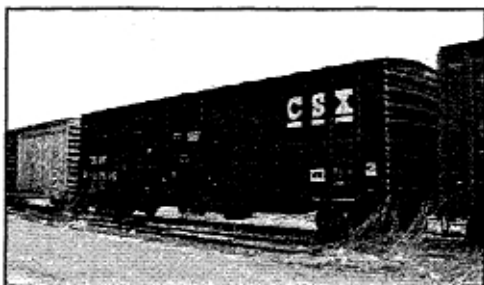


Attack passenger car fires from one adjoining car. DO NOT OPPOSE LINES.

the door to the involved car. The dropped ceiling creates a cockloft-type situation. Fire can involve electrical wiring in this area; it is necessary to open above the ceiling to check for extension.

Fires under cars can involve electrical equipment in both electric and diesel hauled cars. Always make certain that power is removed regardless of the type of car. **Remember that battery power will remain, even after other power sources have been shut down.**

Box Cars



Fight box car fires the same as structure fires.

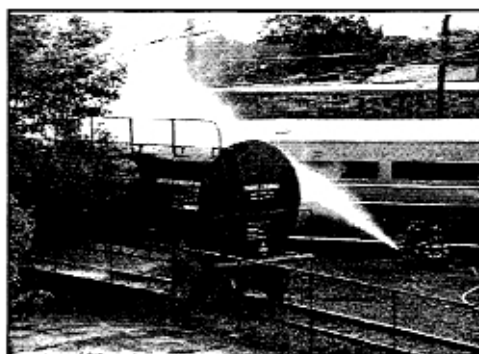


Box car doors slide open horizontally.

Freight cars are constructed from ordinary steel. **Box cars** can be vented from the roof with metal cutting tools. Fires in this type car should also be approached as structures using standard engine and truck company procedures.

Open freight cars pose no special problem. The cargo will dictate the method for attack. For example, a flat car loaded with lumber may require master streams to control. Remember to protect exposures.

Tank cars present the hazard of being a closed container. Certain cars, such as those carrying LPG are also pressure vessels. All tanks can BLEVE violently in a fire; the resulting explosion is greatly intensified when a combustible or flammable liquid or gas is involved.

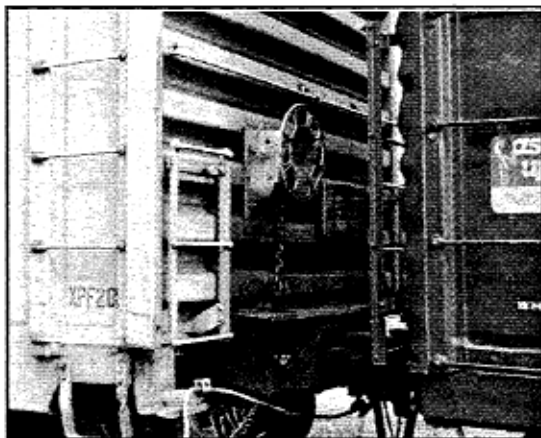


LPG is regularly transported over the LIRR right-of-way by the New York and Atlantic Railroad.

Identification of the car's contents and its hazards is a priority. Before an attack is made on the fire, tactical considerations must include how long the fire has been burning and the availability of required resources, especially water. Nationwide several tragic bleves have occurred with rail tank cars. In many cases, flame impinged on tank surfaces for a long time and/or sufficient water was not available to adequately cool the tank. In such cases, evacuation of emergency personnel as well as civilians to a safe distance is essential.

Hazardous materials are transported by the New York and Atlantic Railroad on Long Island Rail Road's tracks. Propane, or LPG, is the most common; it is carried in tank cars which average 33,000 gallons. Any car with a hazardous cargo is placarded on all 4 sides according to national standards. The Emergency

Response Guide can be used to identify the cargo, its hazards, evacuation distance and correct action. The car serial number can also be used. Both the LIRR Movement Bureau and CHEMTREC can supply essential information from this number. If the car is part of a train, the crew will have the waybill for the car. They will also have the consist for the entire train so that other cars with hazardous materials or combustible cargo can be identified.



Freight car hand brakes are usually ratchet wheels.

Locomotive fires present the hazards of electric power and combustible diesel fuel. When the engine is running, fuel lines are pressurized which helps accelerate the fire if they leak. Both hazards are removed by shutting down the locomotive engine. This is accomplished by operating one of the emergency fuel cut-offs. Dual mode locomotives require that third rail power also be removed where the third rail is present. Residual power in capacitors in the locomotive is also removed when emergency fuel cut-offs are operated.

To shut-down a locomotive, *PUSH and HOLD* the EMERGENCY FUEL CUT-OFF until the engine stops.

Fuel in the tanks, up to 3,400 gallons, will remain; however it will no longer be pumped to the engine. Exterior fuel cut-offs have a fuel gauge to indicate the quantity of fuel remaining. **On the DE-30 and DM-30 locomotives, the gauge is electronic. The reading must be taken before the engine is shut down.**

DE-30 and DM-30 locomotives have an on-board

extinguishing system which can be activated by a control above the engineer's windshield in the locomotive or from the control cab of a 5000 series cab car.

Train Brakes

Train brakes require a constant source of air. Whenever a locomotive is shut down, or third rail power is removed, hand brakes must be set on at least 4 cars, and wheels must be chocked. This can be done on cars elsewhere on the train if hand brakes are not accessible in the fire area. Pulling emergency brake cords will set the service brakes and prevent movement; however when the supply air is depleted, the service brakes will release.

Sub-Station fires pose an extremely dangerous electrical hazard to firefighters. Electrical power comes in at primary voltages of several thousand volts. It is converted to 700 volts DC at 13,000 amps to power the third rail. Never fight a sub-station fire until all power is confirmed to be off. Transformer oils will present a class "B" fire; however no PCBs are present in LIRR transformers.

Stations and other buildings are ordinary structures. Limited quantities of hazardous materials may be present as they would be in any commercial or industrial facility.

Fires at **property adjacent** to rail road right-of-way may require firefighters to operate near or on the tracks. Third rail power and train movement must be considered in these situations. Proper notification to the Movement Bureau and **THIRD RAIL POWER REMOVAL**, a **SLOW ORDER** or a **STOP ORDER** may be required to protect personnel.

Hose lines should never be stretched across tracks without communication to the Movement Bureau and a **STOP ORDER** in effect. Where an extended operation is necessary, rail road personnel can be dispatched to assist by placing hoselines under the tracks. This allows trains to operate in the area and minimizes the impact to train operations and the public.

DERAILMENTS and COLLISIONS

A collision between trains or a derailment may require Limited Area Disaster Procedures. When passenger



trains are involved, a Mass Casualty Incident (MCI) will occur. Because of the construction of rail cars, personnel skilled in heavy duty rescue techniques will be required along with heavy duty equipment.

Special resources in addition to normal mutual-aid will likely be required. This will include technical rescue personnel, wreck equipment and specialists from the rail road. Haz-mat technical people will be required if a hazardous material is involved.

Incident Command sectors will include medical triage, treatment and transport, public information, multi-agency liaison and mutual-aid staging.

COLLISIONS WITH VEHICLES or PEOPLE

People or vehicles struck by trains present a smaller scale, but equally difficult scenario. Extrication, if possible, still requires heavy duty equipment. Usually only a small movement of the train is required to free the victim. These situations often result in one or more fatalities. Some are intentional suicides. Debris may be scattered along a large area. Vehicles or victims can become energized by third rail power. Critical incident stress de-briefing may be required for all persons involved in the response. This includes both emergency responders as well as rail road personnel.

MEDICAL EMERGENCIES

Occasionally people become ill or are injured onboard a train. When assistance is required from EMS, response is coordinated through the Movement Bureau who request that an ambulance meet the train at a designated station.

ACCESS TO PASSENGER CARS

Entry to cars is a priority to responders when evacuation is necessary or a fire involves the train. Cutting stainless steel car skin or removing windows other than those designed for escape is not practical. Side windows are made from Lexan and will not break. Windows on car ends are reinforced to withstand projectiles at high speed; they will not shatter or break. Remember that the car end doors open inward. Doors on the extreme ends of the train are latched and locked. They may be used if train crew members are present to unlock them. Use of these doors should be coordinated with the conductor if possible.

The best way to gain entry to passenger cars is through the side doors.

Although they are usually unlocked, entry from the right-of-way through doors between cars is not safe or practical. All passenger cars, regardless of type, have high voltage electric jumper cables between them. **Climbing or working in this area is extremely dangerous!** In addition, rubber gaskets between cars do not allow sufficient room for a person to squeeze through them. On electric cars there are no gaskets where "F" ends are coupled together; however there still is not enough space to safely enter.

Side doors are the best means for gaining entry. If rail road personnel are available, and power is still on, have them open doors in the normal manner. If this is not possible, emergency entry is simple.

All bi-level coaches have emergency door releases on the outside at 2 locations for each side door. One is located at track level. To operate this release, raise the rubber flap and pull the "T" handle. This will unlatch the door and allow it to be pushed into its pocket.

A second release is in a glass protected position at platform level. The glass cover breaks easily with any tool, and the release operates the same as the track level release.

On the interior, another emergency "T" handle release is located above each door behind a labeled cover. Open the cover, pull the handle and slide the door into its pocket.

M-3 electric cars have a track level emergency door release labeled "FIREMAN" on one side door leaf on each side. As with bi-level diesel cars, the door is opened by pulling the "T" handle and sliding the unlatched leaf into the door pocket. M-1 electric cars do not have exterior releases.

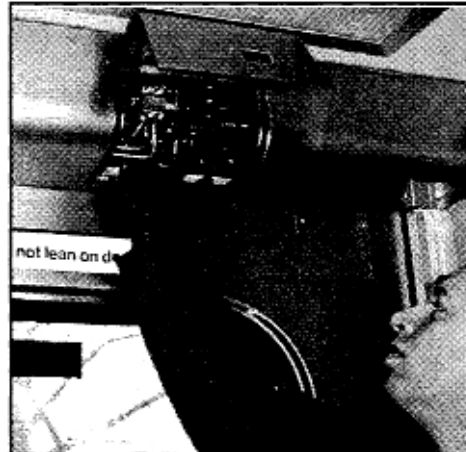
IMPORTANT
DO NOT force side doors.
Distorted door leaves cannot slide into their pocket.



BI-LEVEL EMERGENCY DOOR RELEASE OPERATION



Exterior releases are located at each door at both track and platform levels.



A release is located on the interior above each door.



Pull "T" handle to un-latch door.



Slide door into pocket.

All doors on electric cars can be opened from the inside. An emergency release, painted red, is located behind a labeled panel at the passenger seat closest to each door leaf. To open doors, open the panel and operate the red handle to unlatch the door. Slide the door leaf into its pocket. This must be repeated for each door

Under no circumstances should doors be opened while the train is in motion!

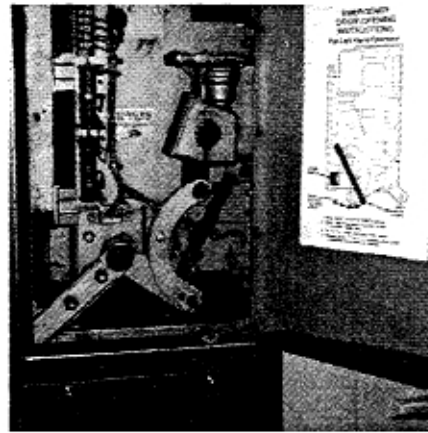
Side doors should not be forced. If bent, twisted or distorted, it will not be possible to slide them fully into the door pocket.



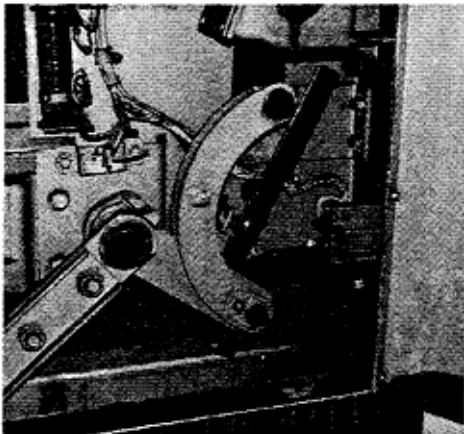
M-1 / M-3 INTERIOR EMERGENCY DOOR RELEASE OPERATION



Locate marked panel at seat adjacent to door vestibule.



Turn thumbscrews and open door.



Locate **RED** release lever.



Slide **RED** lever to unlatch door leaf.



Slide door leaf into pocket.



If entry is not possible by using emergency releases, entry to the car is possible through every side door window. If operating at track level, place a ladder next to the door which is to be entered.

Use a halligan tool or the flat side of an axe to strike the window near the top or bottom to dislodge it from the gasket. Push the glass into the car in one piece. A member should then climb into the car through the opening and operate the release from the inside. Remove the window gasket completely to allow the door to slide into the pocket.

Emergency entry through door windows is the same for every type of passenger car in the Long Island Rail Road fleet. Door glass can also be kicked out from the interior.

EMERGENCY WINDOWS M-3 electric cars and C-3 bi-level coaches have 2 emergency windows on each side and on each level. Pulling the inside handle removes the gasket and allows the window panel to come out in one piece.

CREW STEPS and GRAB IRONS

Emergency responders can enter open doors by using crew steps and grab irons. Be sure to place feet firmly on each step and hold grab irons securely. When swinging into the car, reach inside and grab the handle inside the door.

IMPORTANT

Be sure to remove window gasket with glass to permit door leaf to slide fully into its pocket.

PASSENGER EVACUATION

Evacuation of passengers should be coordinated with

ACCESS TO PASSENGER CARS THROUGH DOOR GLASS



Place ladder against car to the side of window to be entered.



Strike window from ladder at top or bottom and push glass into car.



Enter through window using a reduced profile.



Release door from inside and slide door leaf into pocket.

the train crew or the Movement Bureau if possible. If it is safe to do so, the best choice may be to relocate passengers to an unaffected part of the train.

If passengers must be evacuated to the right-of-way, they should be removed by ladder rather than via crew steps and grab irons. Each bi-level passenger car and each married pair of electric cars carries a special ladder designed for evacuation through either side or end doors. Straight fire department ladders are well suited for this purpose. Folding ladders can also be used.

Remember that the public will be unfamiliar with the dangers of the third rail and train movement on other



tracks. They should not be put in this environment until these hazards have been removed. Sufficient emergency personnel should be present to guide passengers to a safe location.

Evacuation is sometimes accomplished by means of a rescue train which is brought either to one end of the disabled train or alongside on an adjoining track. Special ramps are used by the rail road when passengers are transferred through side doors to the rescue train. Backboards placed on top of ladders can also be used to make evacuation ramps.

Car Entry Using Crew Steps and Grab Irons



Place foot on crew step and grasp grab iron firmly.



Place foot on car floor and grab inside rail.

When a rescue train is used, personnel must be clear and ready for train movement and restoration of power to the third rail. Coordination with the rail road is essential to the safety of both passengers and emergency personnel!

RESPONSE TACTICS and COMMAND

Emergencies which involve the rail road are similar to those encountered elsewhere. Search and rescue of victims is always the first priority. However rail incidents present special hazards to both victims and responders. These hazards must be addressed, and they may require special resources and procedures from the rail road.

The basic steps which should be followed at a rail scene are the same as for any emergency scene, but with a few additions. They include:

- ▶ Size-up
- ▶ Scene protection and stabilization
- ▶ Communication with the railroad
- ▶ Victim evacuation/extrication
- ▶ Control of the emergency
- ▶ Overhaul
- ▶ Restoration

Size-up should include:

- ▶ Identification of the type of emergency
- ▶ Identification of hazards which are present
- ▶ Location
- ▶ Immediate action required
- ▶ Special resources which may be required

Location should be in terms which can be easily understood by the Movement Bureau. Railroad landmarks include stations, crossings, bridges, etc. State the location as a distance east or west of a landmark, or between two landmarks. Remember that direction on the LIRR is always stated as east or west. If a train is involved, obtain the numbers of the car or locomotive on each end of the train as soon as possible.

Scene Protection and Stabilization must be accomplished as soon as possible. Approaching trains will continue until ordered or signaled to stop. Members must immediately be deployed in each direction to establish a safety zone.

Electrical hazards must be removed. Where it is present, power to the third rail must be removed. If a locomotive is involved, it must be shut down to remove

both electric and pressurized fuel hazards. Remember that battery power will remain.

As with any vehicle, steps must be taken to stabilize the train to prevent movement. This includes setting hand brakes and chocking wheels. If the train crew is incapacitated, this must be done by emergency responders. If the train is off the track, block it to prevent further collapse or movement. A quantity of large size blocks may be required. The rail road wreck crew can supply this material.

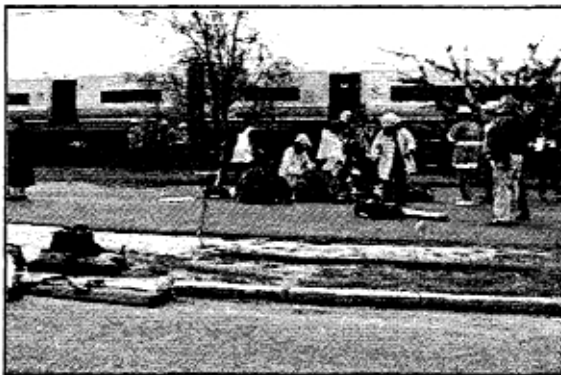
Accountability of members must be established for all agencies present. This will be difficult at a major incident. However, until trains are stopped and electrical power is removed, members will be at risk if they are not operating in an organized structure with the knowledge of the incident commander.

Communication with the Movement Bureau, should be established immediately upon arrival and should be continued so that the rail road can identify the resources they must provide both to support emergency operations and to restore service. When the situation warrants, equipment numbers, especially end car numbers should be provided as soon as possible.

Victim extrication will most likely require heavy equipment. Establish staging areas for mutual-aid as well as areas for equipment pooling.

Where large numbers of victims are involved, mass casualty incident procedures must be instituted. Incident Command sectors must be established for patient triage, treatment and transport.

Control of the Emergency and Overhaul includes



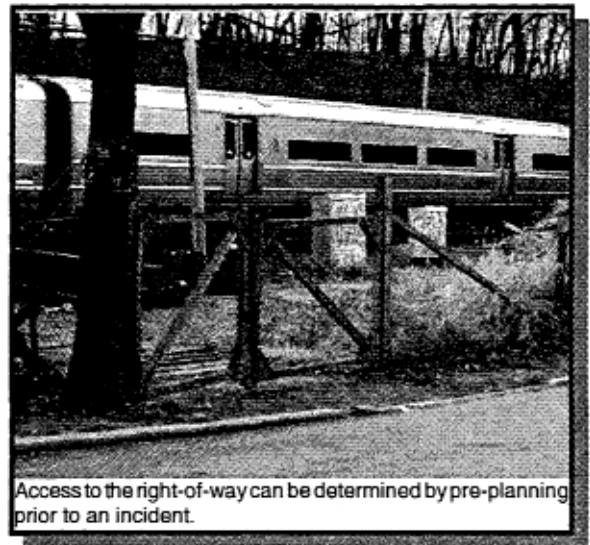
A rail incident can result in a mass casualty incident.

extinguishment of fire or containment of a haz-mat if either is involved.

Restoration of service is not a function of the emergency services. However, service can never be resumed or third rail power restored without permission of the person who removed it. Before allowing restoration or turning the scene over to the rail road, a thorough check of the right-of-way should be performed. **It is essential to make certain that all personnel and equipment are clear of the tracks before power goes back on and train traffic resumes!**

THE INCIDENT COMMAND SYSTEM

Operations at rail road incidents require use of the Incident Command System. The many functions and areas at a major incident can be managed only by maintaining a formal, structured command. Sectors which are not used often will be necessary at a rail incident. This includes a Public Information Officer (P.I.O.) to deal with the press, families and others who will appear at the scene. Liaison will be required, not only with rail road personnel and executives, but with public officials and representatives from regulatory agencies. ICS is recognized by all response agencies in New York State as the standard system for operating at major disaster scenes.



Access to the right-of-way can be determined by pre-planning prior to an incident.

PRE-PLANNING

A pre-plan for potential rail road problems can be helpful prior to an incident.



Access to the Right-of-Way can be identified. It may be necessary to enter through adjoining properties, rail road maintenance gates, station platforms or crossings. It is better to address difficult areas before the incident occurs.

Locations for the Command Post, Support Vehicles (such as field communications), Public Information, Staging, Triage, Treatment and Transport Areas can be identified. More than one choice may be required, depending on exactly where the incident occurs. Caution should be used when considering parking lots. Lots used by commuters or shoppers may be full at the time of the actual emergency.

Required Resources can be identified. This can include normal mutual-aid as well as special equipment or personnel. Liaison or agreements can be established as part of the pre-plan.

Procedures for response, command, mutual-aid and operations can be established. They should interface as much as possible with existing Limited Area Disaster Plans.

A pre-plan will limit confusion and will establish a basic framework for operating at an actual incident. Training and practice can be completed prior to the incident so that as many responders as possible are familiar with what will be expected of them.

INCIDENT FLOW CHART

The Long Island Rail Road has developed a flow chart for use at incidents. It can be used along with size-up information to help determine the scope of the emergency and the need for specific actions by the rail road. Utilization of this chart by both emergency personnel and LIRR employees can facilitate coordination among all agencies which are at the scene.

MINIMIZING IMPACT ON THE RAIL ROAD

Safety of emergency personnel operating at a rail road scene is always the first priority. Trains should never be allowed to operate or third rail left energized if it can put personnel in jeopardy. However, passengers stranded in a train without power have no air conditioning or ventilation. Before long they will become ill and create another incident.

The fact is that most incidents are not major. It is

difficult to justify creating a mass casualty incident on a train over smoking ties which pose no threat to life or property. Often emergency operations can be safely performed without a complete interruption of service.

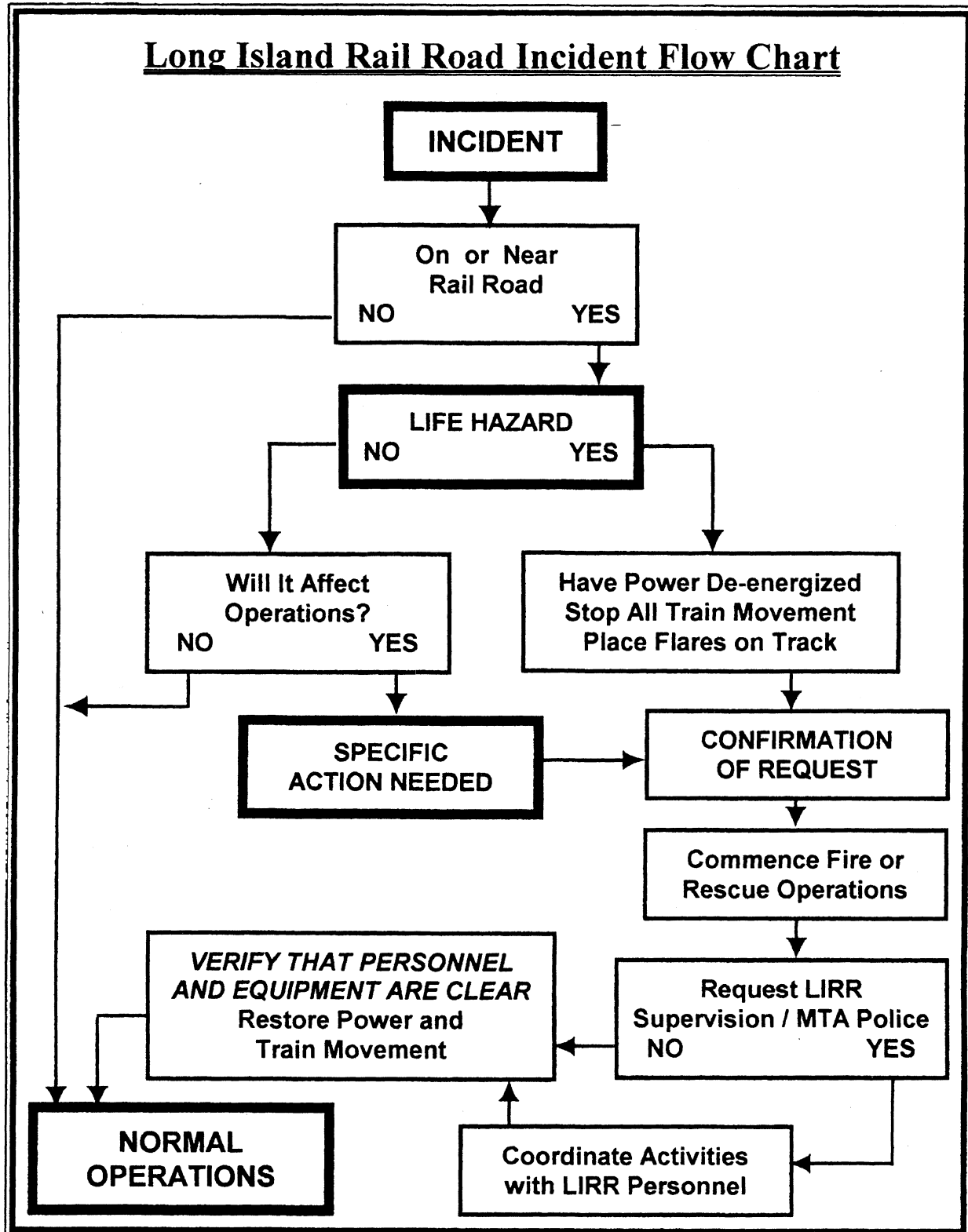
If it is safe to do so, operations on a limited basis should be considered. This can include blocking only tracks which are directly affected, or permitting a slow order. Operations should be completed as quickly as possible, but without threatening safety or thoroughness. Where operations at adjacent properties will be extended, consider placing hoselines under the tracks.

Expect rail road employees to be anxious to resume operations. They may wish to allow trains to pass through an area before issuing a stop order or removing third rail power. To avoid a conflict it is extremely important to communicate complete and accurate information to the rail road. Establish contact with the Movement Bureau as soon as possible. Request that railroad police or personnel respond to the scene. They will understand the situation best when they see it face to face, and they can provide valuable assistance with assessment and resource needs. The rail road must comply with emergency service requests.

Minimizing the impact of emergency operations, especially during a rush hour, is similar to salvage at a fire. It is not the first priority; however where possible, it is professional to limit damage.



Long Island Rail Road Incident Flow Chart





Hose can be placed under tracks so that trains can continue to operate.



Section 4

Equipment Roster

Passenger Cars

Car Type	M-1 Electric	M-3 Electric	C-1 Bi-Level	C-3 Bi-Level
Numbering	9001 - 9770	9771 & Up	3001 - 3010	4000/5000 & Up
Seating Capacity	118 / 122	114 / 120	181 / 190	137 / 143
Length	85' 0"	85' 0"	85' 0"	85' 0"
Weight (Empty)	Up to 93,620 lbs.	Up to 112,400 lbs.	Up to 132,500 lbs.	Up to 146,015 lbs.
Emgncy. Exterior Door Release	None	1 Each Side 2 Per Car	All Side Doors at Track Level and Platform Level	All Side Doors at Track Level and Platform Level
Emergency Windows	None	2 Each Side 4 Per Car	4 per Level 8 Per Car	4 per Level 8 Per Car

Locomotives

Locomotive Type and Service	DE-30 Passenger	DM-30 Dual Mode Passenger	GP-38/E-20 General Purpose	E-15 General Purpose	E-10 Switching	FL-9 Dual Mode Passenger
Numbering	400 - 422	500 - 522	250 - 277	150 - 172	100 - 107	300 - 302
Length	75' 0"	75' 0"	59' 2"	50' 2"	44' 3"	58' 8"
Weight	292,000 lbs.	299,000 lbs.	268,500 lbs.	248,000 lbs.	235,000 lbs.	275,000 lbs.
Horsepower	3,000	3,000	2,000	1,500	1,000	2,800
Fuel Capacity	3,400 gal.	2,400 gal.	3,000 gal.	1,500 gal.	1,000 gal.	1,507 gal.
Third Rail Contact Shoes	NO	<u>YES</u>	NO	NO	NO	<u>YES</u>

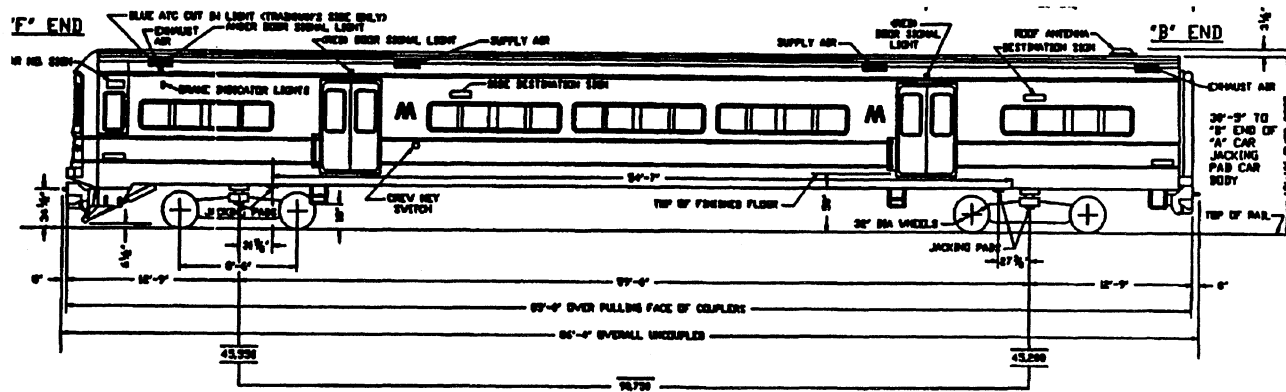


Equipment Being Replaced:

Power Packs: These units, **numbered 600 - 622**, resemble locomotives, but they have no traction motors. They function as a 650 volt hotel power source for passenger cars, and their cab provides remote control of the locomotive at the opposite end of the train. They are connected to the train with high voltage jumper cables. They carry up to 1,400 gallons of fuel.

Diesel Hauled Cars: The fleet of diesel hauled passenger cars, **numbered in the 2000 series**, is being replaced by the Bi-Level coaches. Certain of these cars, numbered 2000 and 2901-2980 have their own generators for electric power. They carry 150 gallons of fuel.

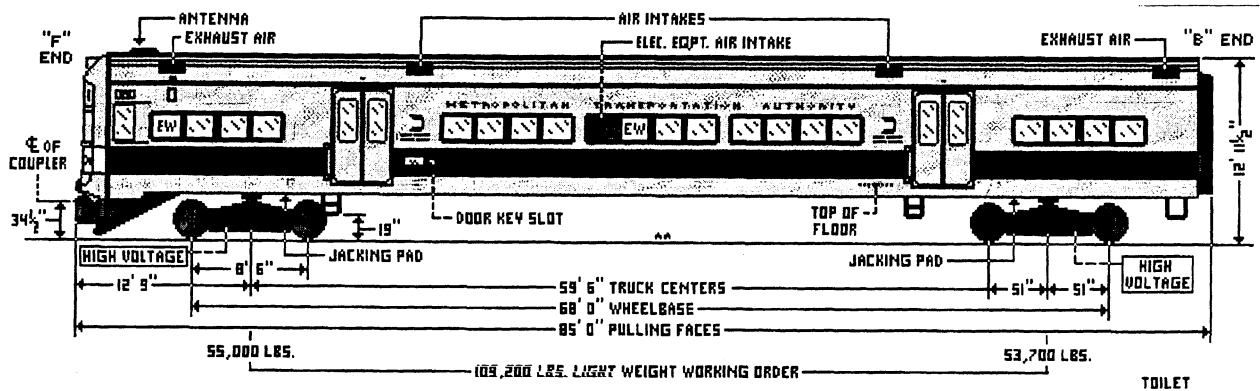
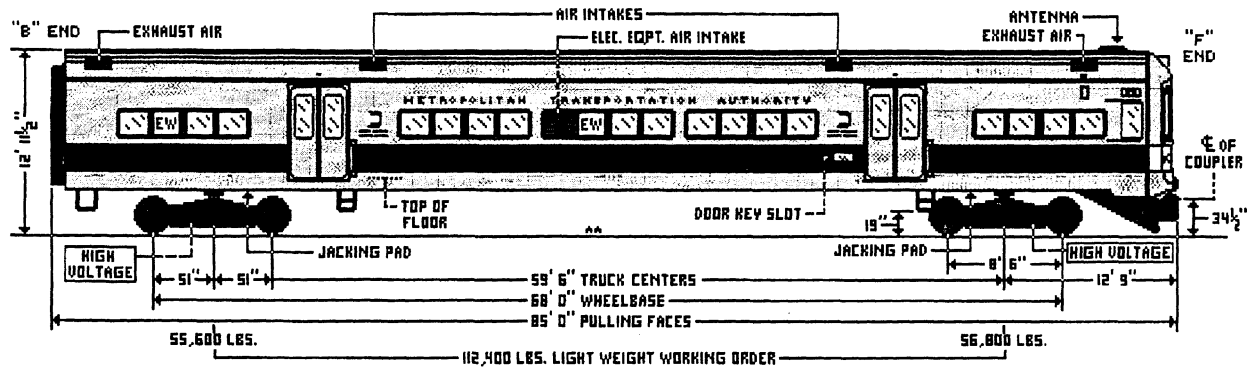
M-1 Electric Cars





Passenger Cars

M-3 Electric Cars



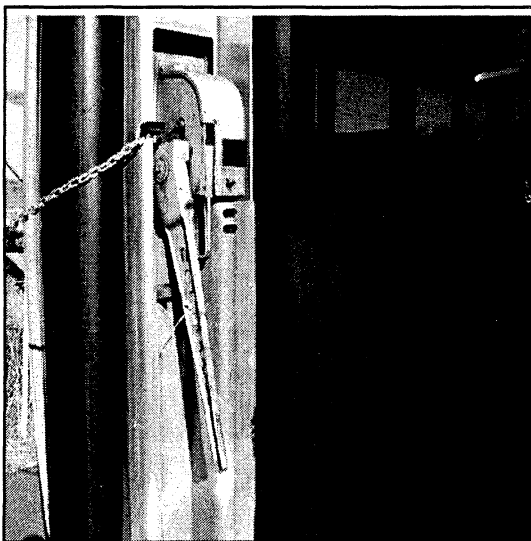


Passenger Cars

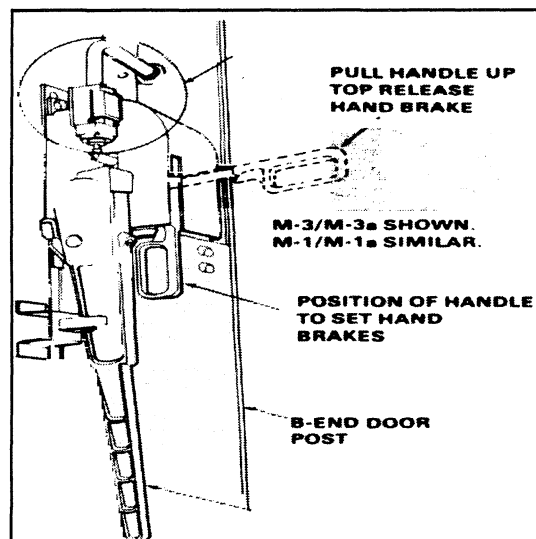
M-1 and M-3 Car Details

	M-1 "A" Car	M-1 "B" Car	M-3 "A" Car	M-3 "B" Car
Numbering	9002-9770 (Even Numbers)	9001-9669 (Odd Numbers)	9772 and up (Even Numbers)	9771 and up (Odd Numbers)
Length	85' 0"	85' 0"	85' 0"	85' 0"
Weight (Empty)	93,620 lbs.	90,750 lbs.	112,400 lbs.	109,200 lbs.
Seating Capacity	122	118	118	120
Ceiling Height	6' 9"	6' 9"	6' 9"	6' 9"
Side Door Height	6' 6"	6' 6"	6' 6"	6' 6"
Side Door Width	4' 2"	4' 2"	4' 2"	4' 2"
Toilet	NO	YES	NO	YES
Emgncy. Exterior Door Release	NONE	NONE	1 Each Side Each Car	1 Each Side Each Car
Emergency Windows	NONE	NONE	2 Each Side 4 Per Car	2 Each Side 4 Per Car

M-1 and M-3 Car Hand Brake Operation



Hand brakes are located at the "B" end of each car outside the End Door.



Pull ratchet handle several times until tension is felt.

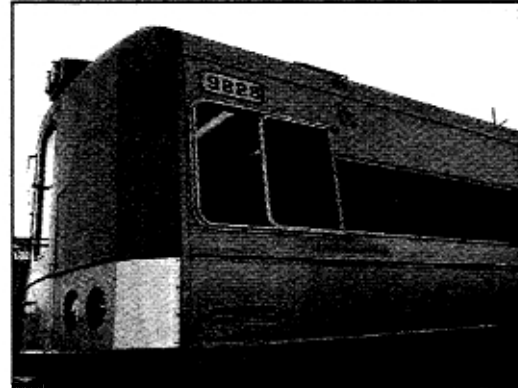
Passenger Cars

M-1 and M-3 Car Differences

Control Cab Windows

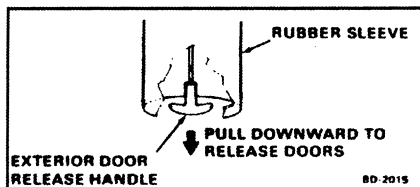


M-1 Cab windows open by dropping vertically into a concealed pocket.



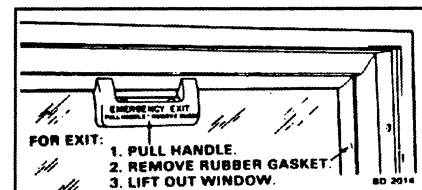
M-3 Cab windows open horizontally on an exposed, exterior track.

M-3 Exterior Door Release



Each M-3 Car has a track level Emergency Door Release for 1 door leaf on each side.

M-3 Emergency Windows



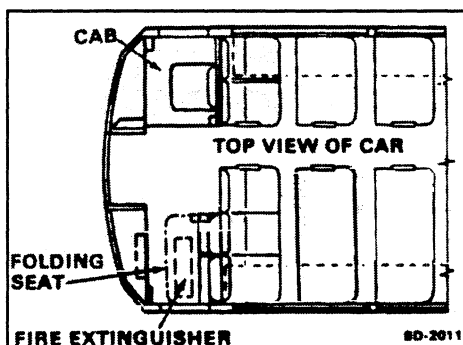
Each M-3 Car has 4 Emergency Windows, 2 on each side of the car.

M-1 Cars have NO Exterior Door Releases or Emergency Windows.

Passenger Cars

M-1 and M-3 Car Differences

Fire Extinguishers



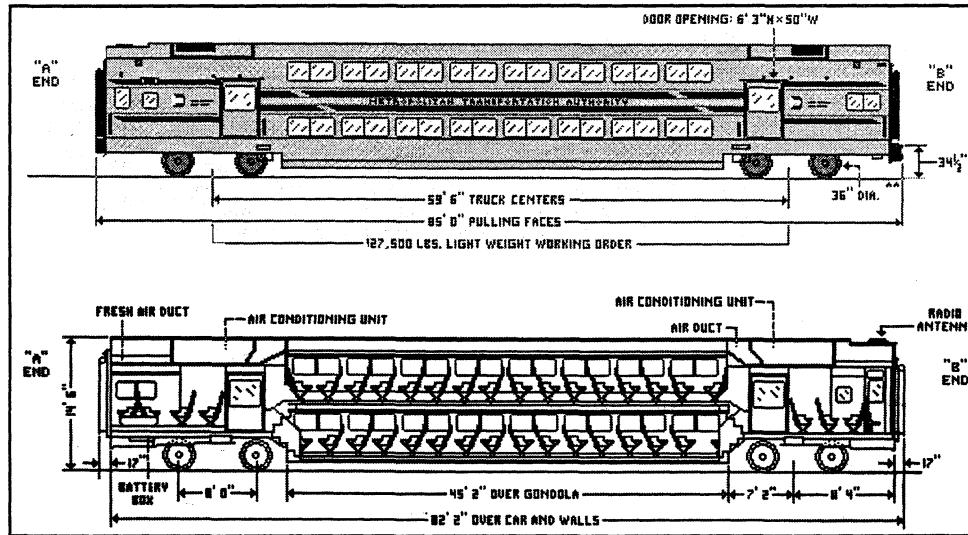
M-3 Cars: A dry chemical fire extinguisher is mounted under the passenger seat across from the cab.

M-1 Cars have a dry chemical fire extinguisher located either in the “B” Car crew locker or mounted under the passenger seat behind each cab.

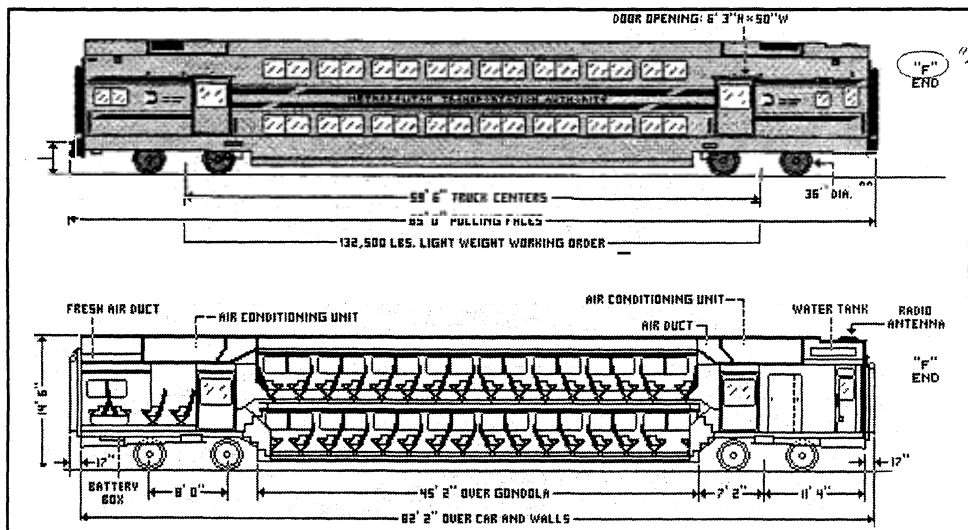
Passenger Cars

C-1 Bi-Level Cars Numbered 3001 - 3010

C 1-A Bi-Level Coach Numbered 3001- 3009 (Even Numbers) Seats 190



C 1-B Bi-Level Coach Numbered 3001- 3009 (Odd Numbers) Seats 181

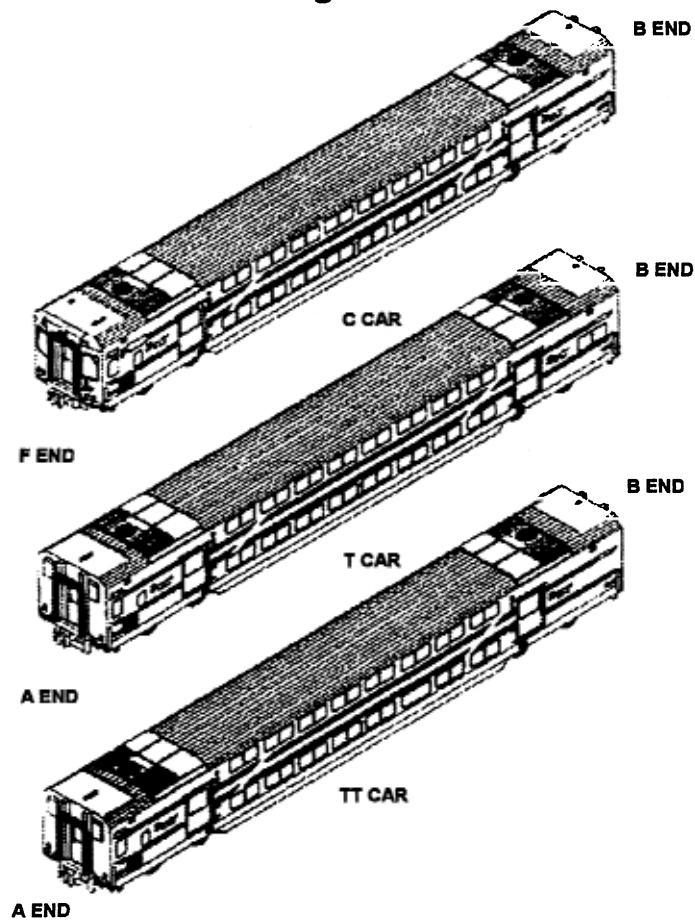


Passenger Cars

C-3 Bi-Level Cars Numbered 4000 and 5000 Series

Car Type	Seating Capacity	Weight	Hotel Power	Battery Power
C-3 - C	137	146,015 lbs.	480 volts AC	74 volts DC
C-3 - T	143	138,900 lbs.	480 volts AC	74 volts DC
C-3 - TT	137	142,060 lbs.	480 volts AC	74 volts DC

Car Configurations

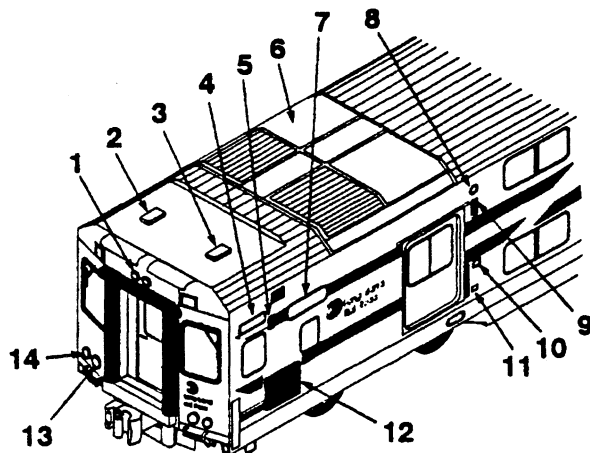




Passenger Cars

C-3 Bi-Level Cars Numbered 4000 and 5000 Series

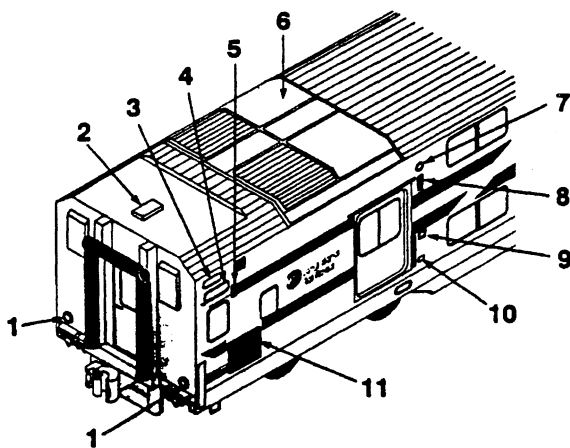
EXTERIOR ARRANGEMENTS



C CAR F END

LEGEND:

1. Headlight
2. Data Radio Antenna
3. Train Radio Antenna
4. Destination Sign
5. Indicator Lights
6. HVAC Unit 1
7. Number Board
8. Exterior Speaker
9. Door Indicator Lights
10. Emergency Door Handle
11. Crew Access Switch
12. Battery Box
13. Auxiliary Light
14. Marker Light



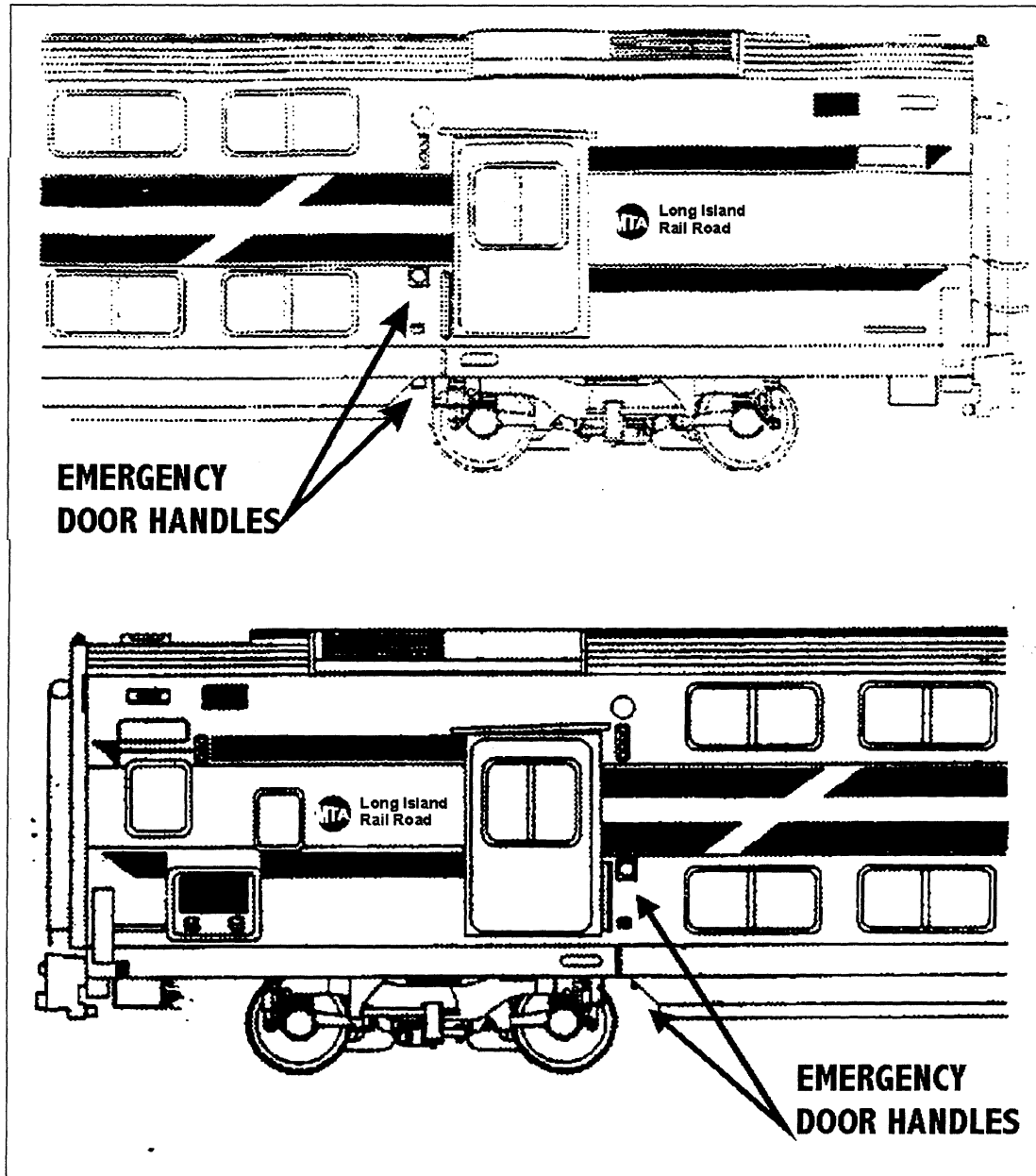
T CAR AND TT CAR A END

LEGEND:

1. Marker Lights
2. Train Radio Antenna
3. Number Board
4. Destination Sign
5. Indicator Lights
6. HVAC Unit 1
7. Exterior Speaker
8. Door Indicator Lights
9. Emergency Door Handle
10. Crew Access Switch
11. Battery Box

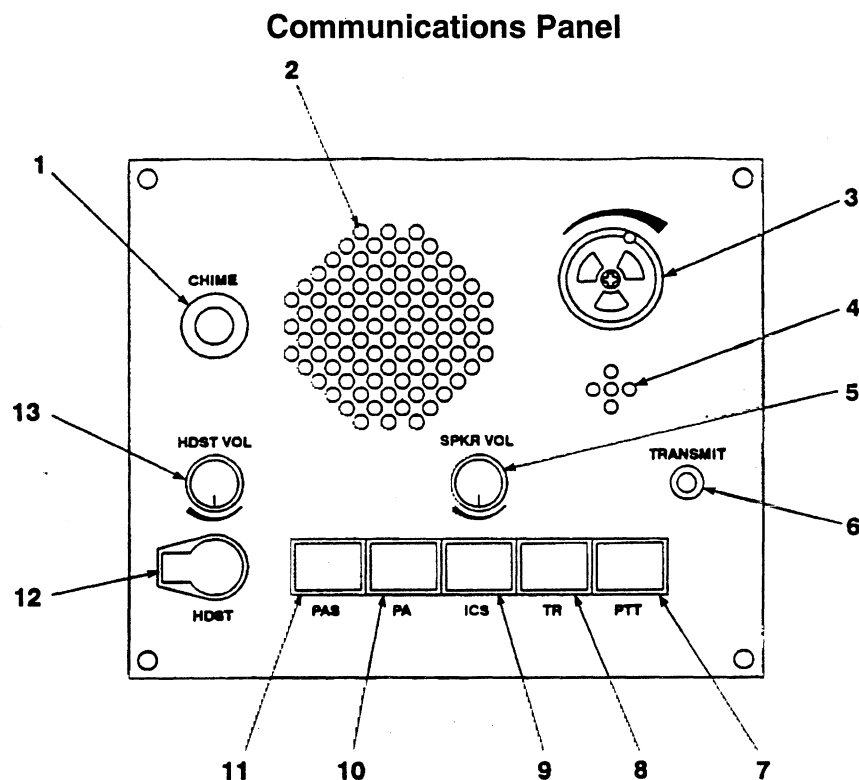
Passenger Cars

C-3 Bi-Level Cars Numbered 4000 and 5000 Series



Passenger Cars

C-3 Bi-Level Cars Numbered 4000 and 5000 Series



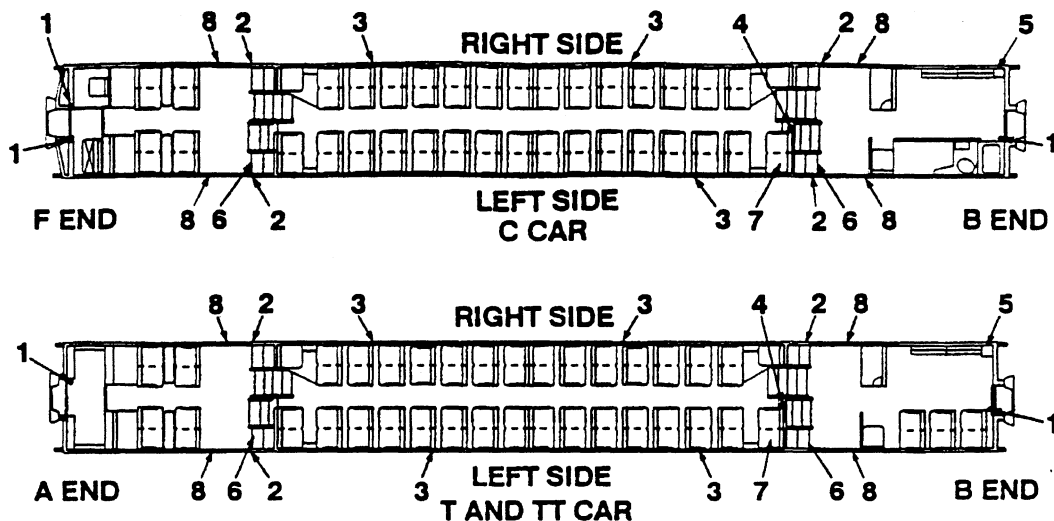
LEGEND

- | | |
|-------------------------|------------------------------|
| 1. Chime Pushbutton | 8. TR Pushbutton/Indicator |
| 2. Speaker | 9. ICS Pushbutton/Indicator |
| 3. Buzzer | 10. PA Pushbutton/Indicator |
| 4. Microphone | 11. PAS Pushbutton/Indicator |
| 5. Spkr. Volume Control | 12. HDST Connector |
| 6. Transmit Indicator | 13. HDST Volume Control |
| 7. PTT Pushbutton | |

Passenger Cars

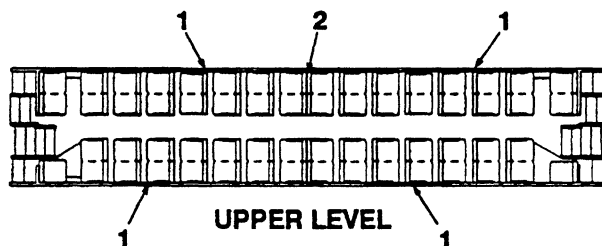
C-3 Bi-Level Cars Numbered 4000 and 5000 Series

EMERGENCY EQUIPMENT



LEGEND

- | | |
|---------------------------|--|
| 1. Emergency Brake Handle | 6. Passenger Intercom |
| 2. Emergency Door Handle | 7. Emergency Ladder
(In Underseat Locker) |
| 3. Emergency Window | 8. Emergency Ingress Side
Door Window |
| 4. Fire Extinguisher | |
| 5. Handbrake | |



LEGEND

- | |
|--------------------------|
| 1. Emergency Window |
| 2. Emergency Rope Ladder |



Locomotives

DE/DM30AC Locomotives

Manufacturer: Electro Motive Division, General Motors Corporation

Locomotive Model	DE - 30 Diesel Electric	DM-30 Dual Mode
Numbering	400 - 422	500 - 522
Length	75' 0"	75' 0"
Width	9' 8"	9' 8"
Weight	292,000 lbs.	299,000 lbs.
Height	14' 3.5"	14' 3.5"
Horsepower	3000 HP	3000 HP
Fuel Capacity	3,400 gallons	2,400 gallons
Lube Oil Capacity	215 gallons	215 gallons
Internal Voltage (Normal)	925 - 2600 Volts AC	925 - 2600 Volts AC
Internal Voltage (Spikes)	3600 Volts AC	3600 Volts AC
Output Voltage to Train	480 Volts AC	480 Volts AC
Third Rail Contact Shoes	NO	YES



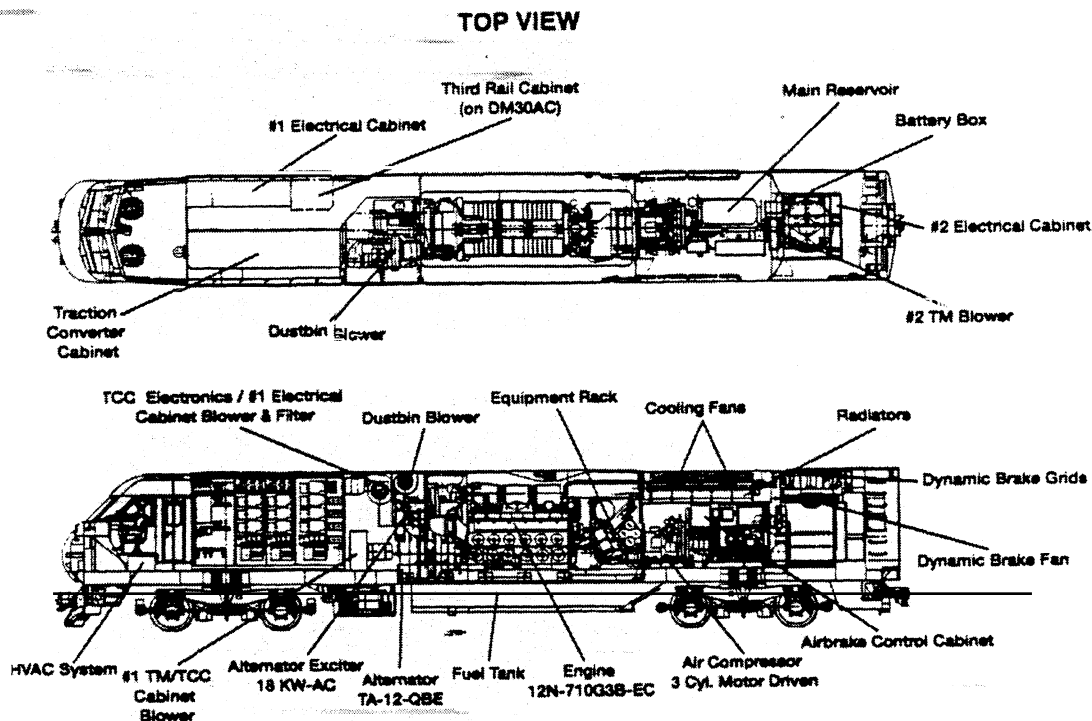
DE-30 Locomotive



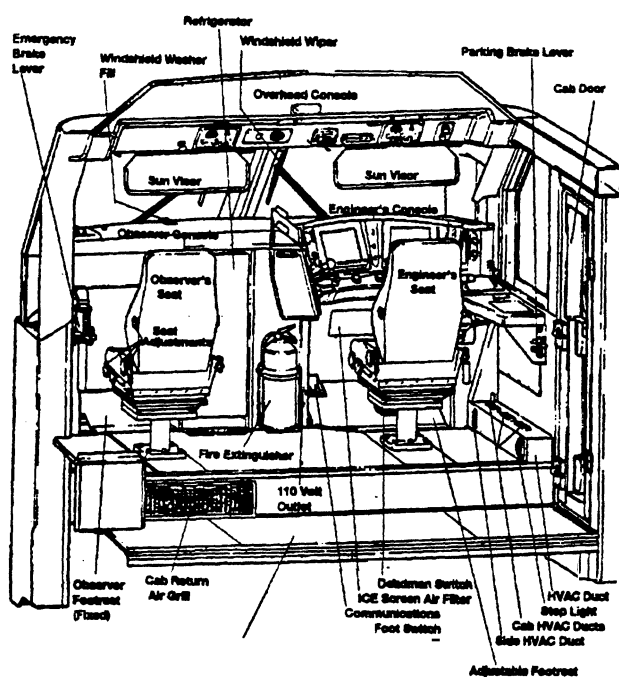
DE-30 and DM-30 Emergency Fuel Cut-Off

Locomotives

DE/DM30AC Locomotives



CAB LAYOUT



Fire Extinguishing System Control on Overhead Console, Right Side

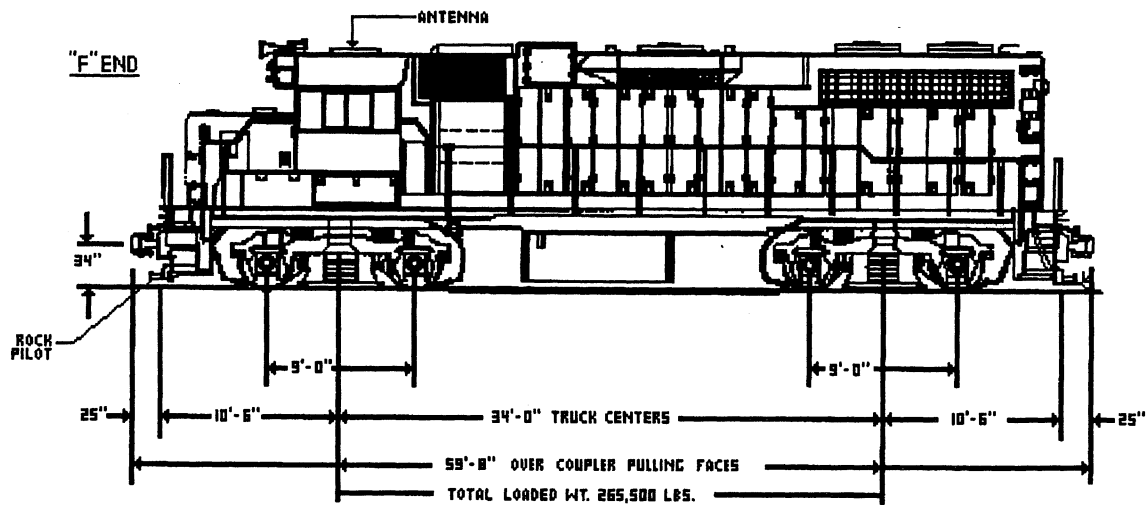
Emergency Fuel Cut-Off on Rear Cab Bulkhead Wall



Locomotives

GP-38 / E-20 Multi-Purpose Locomotive

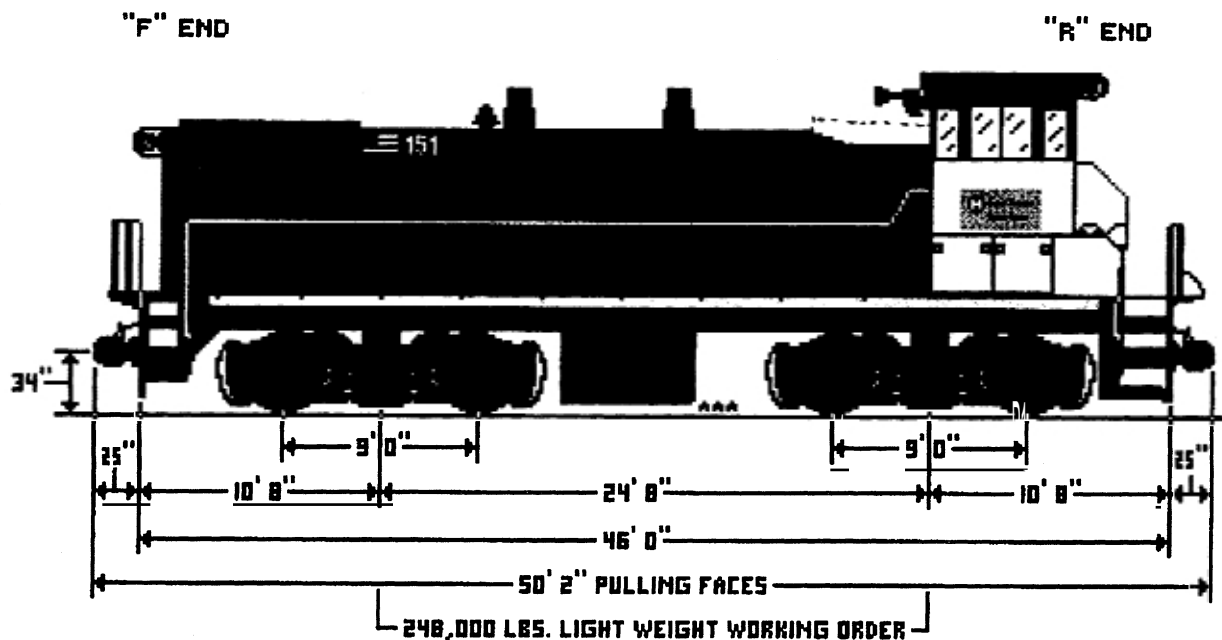
Manufacturer: Electromotive Division, General Motors Corporation



Numbered 251 -277

E-15 Multi-Purpose Locomotive

Manufacturer: Electromotive Division, General Motors Corporation

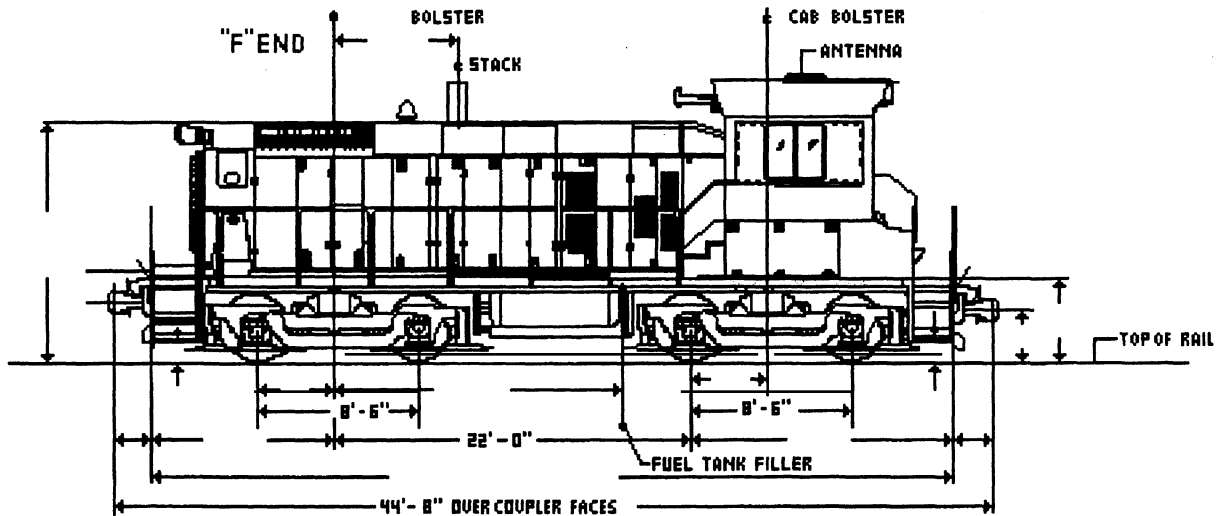


Numbered 151 - 172

Locomotives

E-10 Switcher Locomotive

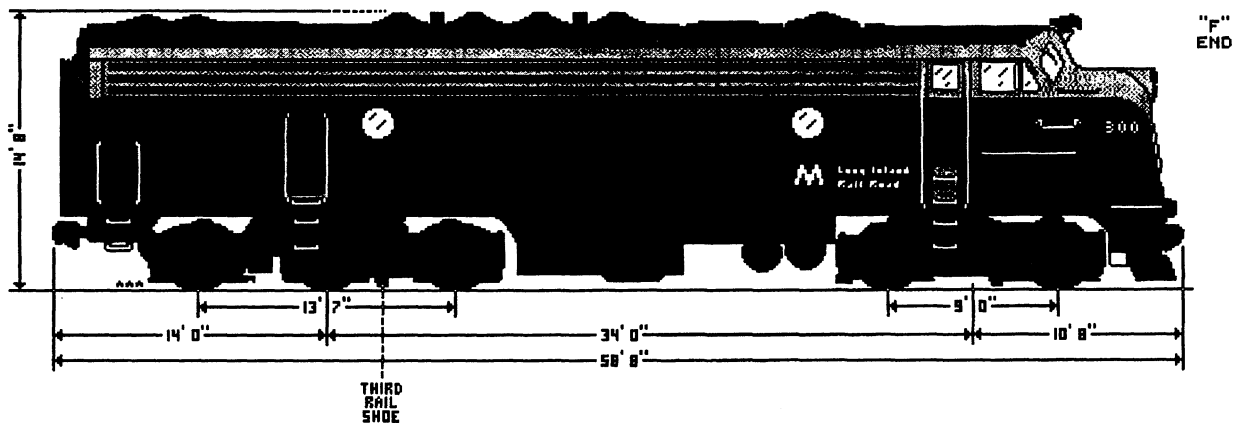
Manufacturer: Electromotive Division, General Motors Corporation



Numbered 100 - 107

FL-9 Dual Mode Passenger Locomotive

Manufacturer: Asea Brown Boveri



Numbered 300 - 302

Section 5

Glossary

“A” Car - The car of a married pair of electric cars without the toilet and which has an even number.

“A” End - The end of certain rail equipment opposite the “B” end.

Assistant Conductor - A uniformed train crew member who reports to the conductor and assists with collection of fares, door operation and other functions required to operate a train.

Automatic Speed Control - A safety feature of the LIRR which automatically stops a train if it exceeds the designated speed limit for a section of track.

“B” Car - The car of a married pair of electric cars with the toilet and which has an odd number.

“B” End - The end of rail equipment opposite the “A” or the “F” end and where the hand brake is located.

Ballast - The stone base which supports the track.

Block Operator - The individual who monitors and controls train movement and switches within a block of track.

Block - (A) A specific section of track - or - (B) A Stop Order.

C-1 Car - An early generation Bi-Level passenger coach pulled or pushed by a locomotive and numbered 3001 through 3010.

C-3 Car - A Bi-Level passenger coach pulled or pushed by a locomotive. C-3 cars without control cabs are numbered in the 4000 series.

Cab Car - A C-3 Bi-Level passenger coach equipped with a control cab and numbered in the 5000 series.

Chief Train Dispatcher - The individual at the Movement Bureau in Jamaica who is responsible for all train movement.

Conductor - The uniformed individual who is in charge of a train.

Consist - The make-up of cars of a train.

Contact Shoe - The component which protrudes from the trucks of an electric car or a dual mode locomotive and draws power from the third rail.

Control Cab - An engineer’s control position located in a locomotive or passenger car from which a train can be operated.

Crew Steps - Foot steps used to enter or exit a rail car or locomotive.

DE-30 locomotive (diesel electric) - An LIRR passenger train locomotive, numbered 400 - 422, which is powered only by its own onboard diesel generator.

Diesel-Electric locomotive - A type of locomotive which is powered by a generator driven by a diesel engine with propulsion provided by electric traction motors on its axles.

DM-30 locomotive (dual mode) - An LIRR passenger train locomotive, numbered 500 - 522, and powered by either its own onboard diesel generator or third rail power.

Dual mode - A type of locomotive which can be powered by either its own diesel engine or an outside power source such as the third rail.

Emergency Brake Valve - An air valve marked by a red handle on a cord which causes a train’s service brakes to engage when it is pulled.

Emergency Door Release - A handle used to unlatch passenger car doors so that they may be opened manually.

Engineer - The person who actually operates a train under the direction of the conductor.

“F” End - The end of certain rail equipment opposite the “B” end.

Grab Iron - A hand hold on the outside of a train car which is used when climbing up or down crew steps.

Hand Brake - A manual, mechanical brake used to secure a train independently of the service brakes.

Hotel Power - The electric power supplied to a train by the locomotive and connected to all cars in a passenger train consist.

M-1 Car - An LIRR electric car, numbered 9001 through 9770.

M-3 Car - An LIRR electric car, numbered 9771 and above.

Married Pair - A set of two M-1 or M-3 electric cars which is required to operate as a complete unit.

Movement Bureau - The central dispatch point, located in Jamaica, for all operations of the Long Island Rail Road.

New York and Atlantic Railway - The franchise operator for freight transportation on the Long Island Rail Road.

Passing Siding - A section of track used in single track territory which allows trains to either pass from opposite directions or one train to overtake another from the same direction.

Pocket Track - A siding used to allow a train to reverse operation to the opposite direction of travel.

Power Director - The person in Jamaica at the Movement Bureau who controls all third rail power on the Long Island Rail Road.

Push-Pull - Rail service where the locomotive remains at the same position in the train and pushes it in one direction and pulls it in the opposite direction.

Railroad East - The direction of travel on the LIRR away from New York City.

Railroad West - The direction of travel on the LIRR toward New York City.

Reverse Signaling - A feature of the signal system on the LIRR which permits full operation in either direction on a track.

Right-of-Way - Rail road tracks and adjacent property.

Running Rails - The two rails on which train wheels roll.

Slow Order - An order issued by the LIRR Movement Bureau which restricts speed for all train traffic on a

specific track in a specific area.

Stop Order - An order issued by the LIRR Movement Bureau which stops all train traffic on a specific track in a specific area. Also known as a "Block".

Switch - The device which directs train wheels from one track to another.

Third Rail - The elevated rail alongside the running rails which carries 700 volts DC used to power electric cars and dual mode locomotives.

Third Rail Power Removal - An action taken by the Power Director which de-energizes one or more specific sections of third rail.

Third Rail Protection Board - The fiberglass or wood cover over the third rail designed to protect it from the weather.

Tie - The component of a rail road track, made from wood or concrete, which carries the rails and maintains the gauge of the track.

Track Gauge - The distance between the running rails which is a standard of 56.5 inches.

Traction Motor - An electric motor, located on the axle of a locomotive or electric car, which propels the train.

Truck - The complete four wheel assembly that supports a rail car body at each end.

Waybill - The written document carried by a train crew for each freight car which details the cars contents, origin and destination. Similar to a Bill of Lading.